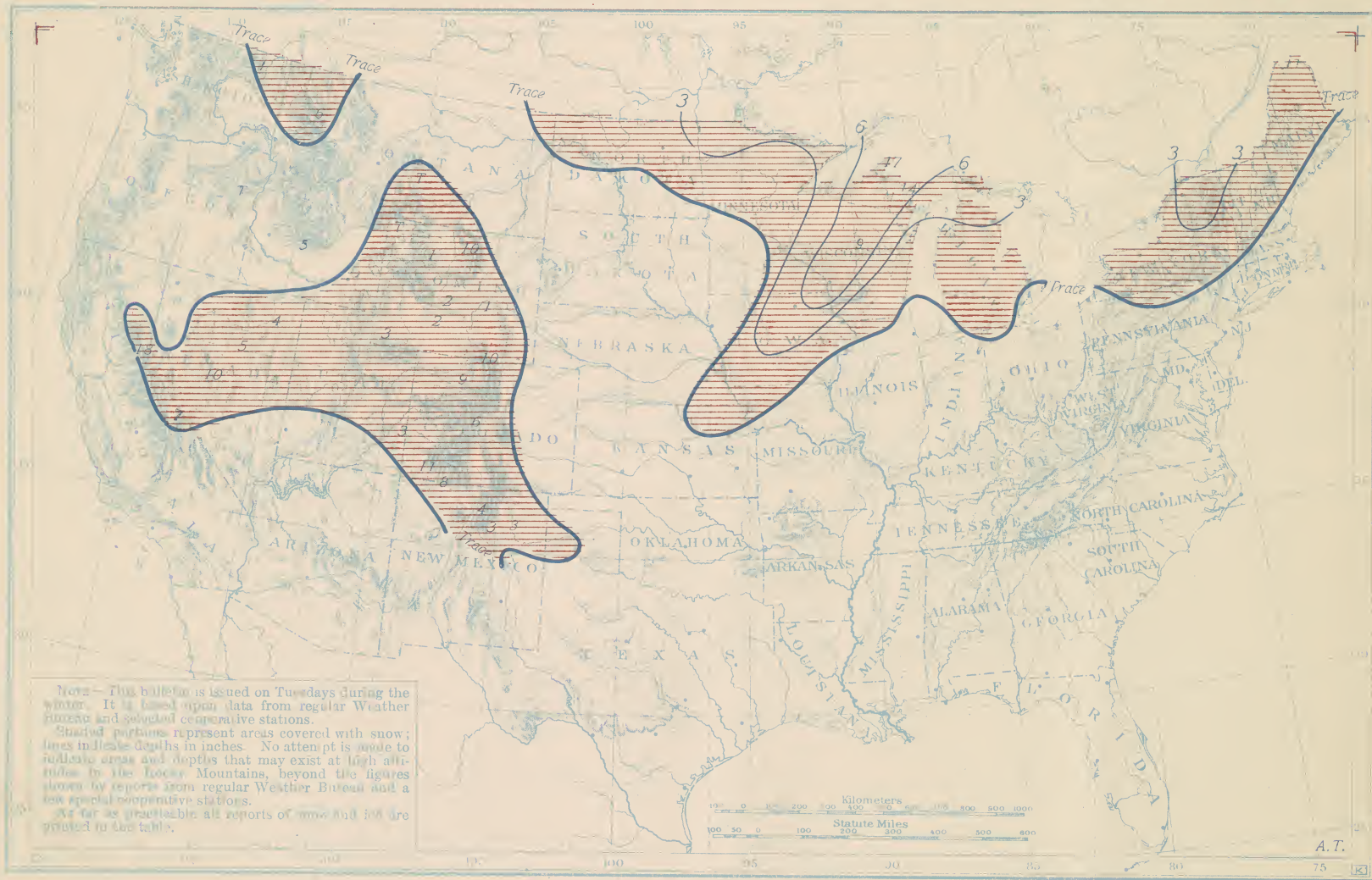


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SNOW AND ICE BULLETIN.



WASHINGTON, D. C., December 3, 1918.

DEPTH OF SNOW.

GENERAL VIEW OF THE SNOWFALL FOR THE SEASON TO DATE.

The snow-storm of the season at the lower elevations set in October 20, over the eastern slopes of the Rocky Mountains, extending eastward during the following day into the Plains States from South Dakota and western Iowa to the Texas Panhandle, the depths ranging from a trace to 6 inches. The amounts were unusually heavy for the period of the year at points in northern Texas, but the covering soon disappeared. Light falls occurred on other dates in the mountain districts, and at the end of the month snow was falling in the upper Lakes region, but elsewhere the ground was bare at all the lower levels.

During November only light falls were observed during the first two decades, and these were confined principally to the northern Rocky Mountain region, eastern Montana, and North Dakota. During the third decade more or less snow occurred over a wide area from Iowa and Missouri westward and generally in the Plains region from Montana to central Texas and thence westward to the Plateau region. Light falls were reported also from the Lakes region eastward to New England. Heavy snows for the season were again reported from the Texas Panhandle, the depth at Amarillo on the 25th amounting to about 9 inches.

There has been little snow so far in December, except in the upper Lakes region, where considerable amounts fell yesterday. At this writing snow still continues in the Lakes region and has extended eastward into northern New York and to the New England coast.

At 8 p. m., Monday, December 2, a considerable body of snow covered the ground from central Iowa northeastward to the Upper Michigan Peninsula, extreme depths of 6 to 17 inches being reported.

In northern New England the snow cover ranges from about 3 inches in the northern portions of Vermont and New Hampshire to 10 inches or more in extreme northern Maine.

Over the Rocky Mountain and Plateau regions there is generally more snow than has been reported at the same date for several years, the depths at some of the higher points in Colorado and adjoining States ranging up to 10 inches or more. In the mountains of the Pacific Coast States some snow has accumulated in California, but otherwise the mountains are mostly bare.

GENERAL SUMMARY.

The weather during the past two months has permitted all agricultural operations to proceed with few interruptions, and winter begins under favorable conditions. The long periods of dry and moderately warm weather permitted the gathering of the corn crop in good condition, and winter grains appear to have made an excellent start. Pasturage was generally plentiful and stock continued on the ranges at the end of the month.

ICE IN RIVERS AND HARBORS.

In the absence of any long continued periods of cold so far, no ice has yet formed on the rivers and lakes of the country, save in a few northern localities. Some ice appears on the upper Missouri and its tributaries, and small amounts are reported locally in Iowa, the upper Lakes region, and northern New England.

The following special reports have been received:

Brattleboro, Vt., December 2.—There is no snow in the Connecticut Valley here, but snow is visible on the nearby hills.

Albany, N. Y., December 3.—There is merely a trace of snow over most of the Hudson and Mohawk Valleys, the greatest depth reported being 3 inches, at Trenton Falls, N. Y. No ice is reported in either river.

DEPTH OF SNOW AND THICKNESS OF ICE AT 8 P. M., DECEMBER 2, 1918.

Stations.	Snow.	Ice in rivers, harbors, etc.	Stations.	Snow.	Ice in rivers, harbors, etc.	Stations.	Snow.	Ice in rivers, harbors, etc.
California.	Inches	Inches	Michigan—Contd.	Inches	Inches	New York—Contd.	Inches	Inches
Huntington Lake.	7		Maple Ridge.	7		Rome.	T.	
Inskip.	T.		Marquette.	14	0.0	Roxbury.	2	
Summit.	18		Newberry.	5		Saranac Lake.	4	
Colorado.			Port Huron.	T.	0.0	Syracuse.	T.	
Durango.	8		Sault Ste. Marie.	1	0.0	Watertown.	1	
Grand Junction.	1		Minnesota.			North Dakota.		
Leadville.	6		Collegeville.	T.		Devils Lake.	2	
Pueblo.	T.		Duluth.	2	3.0	Williston.	T.	*
Rico.	11		Fort Ripley.	T.		Ohio.		
Steamboat Springs.	9		Hinckley.	2		Toledo.	T.	0.0
Idaho.			International Falls.	3		Oregon.		
Montpelier.	1		Leech Lake Dam.	T.		Baker.	T.	
Oxford Ranger Sta.	6		Minneapolis.	T.		Pennsylvania.		
Pocatiello.	T.		Moorhead.	1		Emporium.	T.	
Soldier Creek.	5		St. Paul.	*		South Dakota.		
Wallace.	T.		Thief River Falls.	4		Huron.	0	4.0
Illinois.			Winton.	T.		Yankton.	0	*
Antioch.	T.		Missouri.			Texas.		
Freeport.	T.		St. Joseph.	T.	†	Amarillo.	T.	
Indiana.			Montana.			Utah.		
Howe.	T.		Belton.	1		Black Rock.	T.	
Iowa.			Billings.	T.		Duchesne.	T.	
Albia.	4		Findon.	T.		East Portal.	19	
Atlantic.	3		Haugan.	6		Grantsville.	T.	
Carroll.	1		Nebraska.			Kelton.	T.	
Charles City.	3		Omaha.	T.	†	Manti.	5	
Des Moines.	2	4.0	Nevada.			Moab.	3	
Dubuque.	1	0.0	Austin.	10		Salt Lake City.	T.	
Forest City.	4		Hylton.	5		Vermont.		
Iowa City.	1		North Fork.	4		Brattleboro.	0	
New Hampton.	6		Tonopah.	T.		Burlington.	1	0.0
Pocahontas.	3		Winnemucca.	2		Northfield.	2	
Sioux City.	0	*	New Hampshire.			St. Johnsbury.	1	
Kansas.			Hanover.	1		Wells River.	2	
Concordia.	T.		Keene.	T.		Washington.		
Topeka.	T.		Lancaster.	2		Laurier.	1	
Maine.			New Mexico.			Spokane.	T.	
Cornish.	1		Elizabethtown.	6		Wisconsin.		
Gardiner.	1	†	Santa Fe.	T.		Barron.	3	
Greenville.	1	0.0	Springer.	3		Brodhead.	T.	
Lewiston.	0	†	Tres Piedras.	4		Eau Claire.	5	
Millinocket.	1		Truchas.	3		Fond du Lac.	2	
Van Buren.	11		New York.			Grand Rapids.	10	
Massachusetts.			Albany.	T.	0.0	Green Bay.	2	1.0
Amherst.	T.		Binghamton.	T.		La Crosse.	6	0.0
Williamstown.	T.		Buffalo.	T.	0.0	Madison.	2	
Michigan.			Canton.	3		Medford.	6	
Alpena.	3	0.0	Cazenovia.	4		Park Falls.	5	
Ann Arbor.	T.		Cooperstown.	1		Wausau.	9	†
Big Rapids.	2		De Ruyter.	1		Wyoming.		
Calumet.	17		Fredonia.	1		Casper.	1	
Escanaba.	4	0.0	Ithaca.	T.		Cheyenne.	T.	
Grand Haven.	T.		Lake Placid.	4		Dome Lake.	10	
Grand Rapids.	T.		Lowville.	3		Evanston.	3	
Houghton.	8	0.0	Malone.	3		Fox Park.	10	
Ironwood.	9		Ogdensburg.	1		Lander.	2	
Lansing.	T.		Oswego.	2	0.0	South Pass City.	2	
Ludington.	1		Plattsburg.	4		Valley.	1	
Manistee.	1		Rochester.	1	0.0	Yellowstone Park.	T.	

* Shore ice. † Floating ice. T. indicates trace.

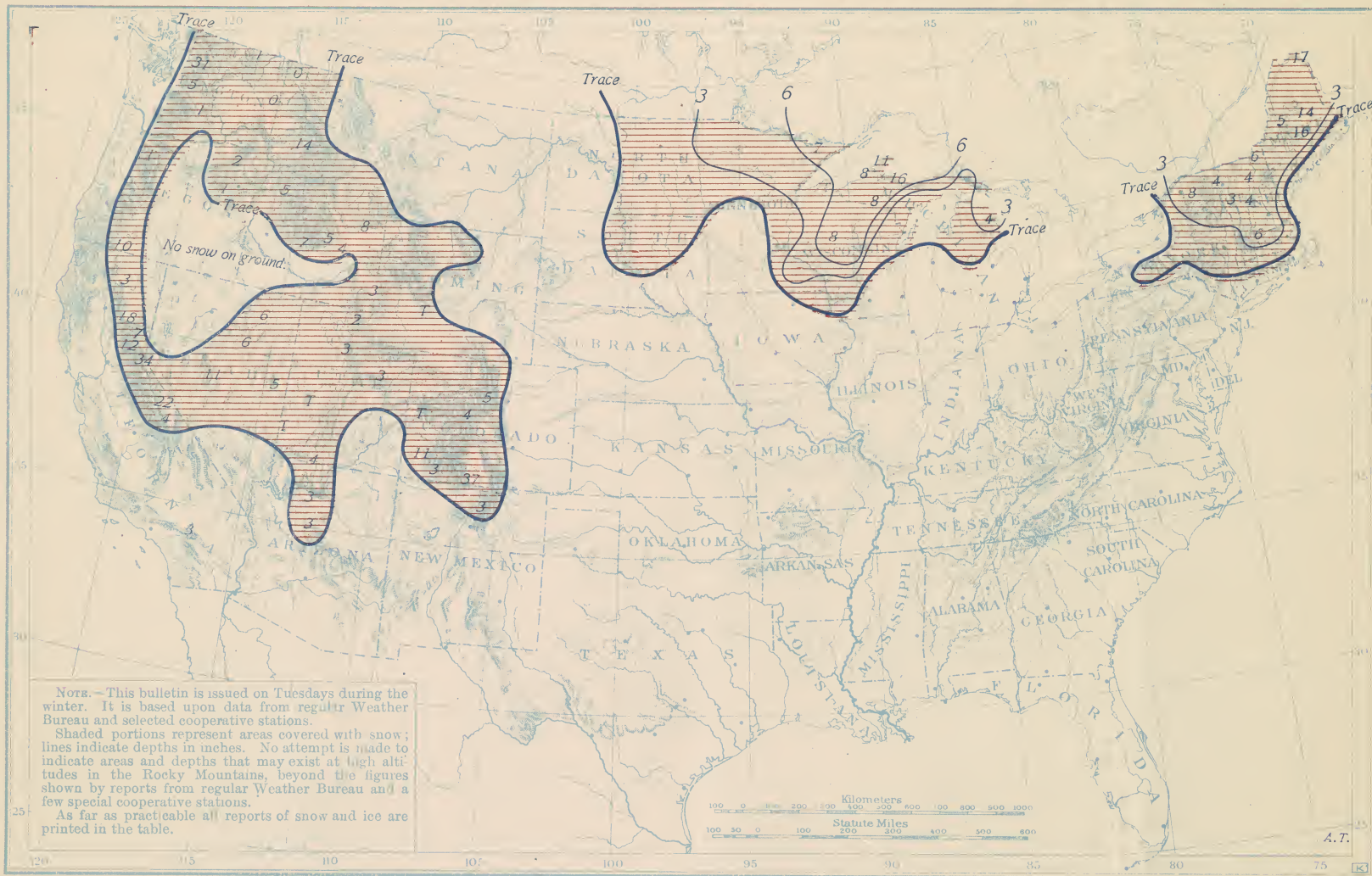
Santa Fe, N. Mex., December 3.—The greatest depth of snow now reported in New Mexico is in the highest mountains, near Elizabethtown, about 14 inches.

Portland, Ore., December 2.—The stations in Oregon heard from, at elevations running up to about 4,500 feet, report the ground bare.

P. C. DAY, Climatologist and Chief of Division.



SNOW AND ICE BULLETIN.



WASHINGTON, D. C., December 10, 1918.

GENERAL SUMMARY OF THE WEATHER DURING THE PAST WEEK.

The storm central in the Lakes region at the beginning of the week moved off the New England coast Wednesday, attended by light snows over the northern Appalachian regions and thence to the Canadian Maritime Provinces.

A second storm moved rapidly eastward from Minnesota during Thursday and Friday, but without material precipitation, except from the Great Lakes eastward. In portions of Northern Michigan there was considerable snow, and the fall was quite heavy locally in northern New York and southern New England. Over the central and western districts the week was remarkably free from precipitation until near the close, when rain set in over the Pacific Coast States and extended eastward, turning to snow in some of the elevated districts. By Monday morning the storm had advanced to eastern Nebraska and rain or snow had fallen over an extensive area through the central portion of the country from the Pacific coast to the Ohio Valley. During Monday the storm advanced slightly eastward, and rain or snow continued over a considerable area from the Lakes region and Ohio Valley northwestward.

At this writing the storm in the West has largely dissipated, but heavy rains fell last night in portions of the Ohio Valley and it is still snowing at points in the Dakotas.

DEPTH OF SNOW.

Some snow disappeared during the week from Iowa northeastward to the upper Lakes and locally in the Rocky Mountain districts, and considerable additions occurred over New England and northern New York where locally there is now a covering of a foot or more.

In the mountain portions of the Plateau and generally over the Sierras there is now considerable snow at the moderate elevations, and in the higher levels the depths range up to nearly three feet at points in northern Arizona and central California.

The principal winter grain regions are still without snow cover, but the weather during the week was generally favorable for continued growth, and the warm rains of the last few days have doubtless been of much benefit.

ICE IN RIVERS AND HARBORS.

Warmer weather generally from the Great Lakes westward prevented the formation of any new ice, and most of that reported last week disappeared. In New England, however, colder weather prevailed and considerable ice formed during the week in the interior and northern districts.

The following reports on ice and snow conditions from special points have been received:

Albany, N. Y., December 10.—The depth of snow in the Hudson Valley ranges from a trace at Stuyvesant to 4 inches at Corinth, while in the Mohawk Valley it averages but a trace. Both rivers are practically clear of ice.

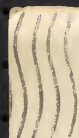
Phoenix, Ariz., December 10.—Snow is 80 inches deep at timber-line on the San Francisco peaks, and 22 inches at 7,500 feet elevation on the Sierra Anchas.

P. C. DAY, Climatologist and Chief of Division.

DEPTH OF SNOW AND THICKNESS OF ICE AT 8 P. M., DECEMBER 9, 1918.

Stations.	Snow.	Ice in rivers, harbors, etc.	Stations.	Snow.	Ice in rivers, harbors, etc.	Stations.	Snow.	Ice in rivers, harbors, etc.
Arizona.	Inches	Inches	Michigan—Contd.	Inches	Inches	North Dakota—Cd.	Inches	Inches
Flagstaff.....	3		Big Rapids.....	T.		Ellendale.....	T.	
Grand Canyon.....	3		Cadillac.....	1		Williston.....	0	3/4
Prescott.....	2		Cadunet.....	11		Oregon.		
Williams.....	T.		Escanaba.....	4	0.0	Baker.....	T.	
California.			Harrisville.....	4		Detroit.....	T.	
Cascadia.....	4		Houghton.....	8	0.0	Hilgard.....	2	
Huntington Lake.....	18		Iron River.....	6		Prairie City.....	1	
Inskip.....	3		Ironwood.....	16		Siskiyou.....	10	
McCloud.....	7		Marquette.....	6	0.0	Pennsylvania.		
Portola.....	7		Newberry.....	6		Drifton.....	T.	
Sierraville.....	3		Saginaw.....	0	*	Rhode Island.		
Squirrel Inn.....	34		Minnesota.			Providence.....	2	0.0
Summit.....	1		Duluth.....	4	0.0	South Dakota.		
Yosemite.....	1		Grand Meadow.....	3		Huron.....	T.	2.0
Colorado.			Grandy.....	2		Pierre.....	1	0.0
Cumbres.....	37		International Falls	4		Yankton.....	0	*
Dillon.....	3		Leech Lake Dam.....	3		Utah.		
Durango.....	3		Minneapolis.....	T.		Duchesne.....	3	
Grand Junction.....	4		Moorhead.....	2	*	Kanab.....	4	
Leadville.....	T.		St. Paul.....	T.	*	Kelton.....	1	
Rico.....	11		Thief River Falls.....	5		Logan.....	2	
Connecticut.			Winton.....	7		Modena.....	T.	
Hartford.....	1	†	Montana.			Salt Lake City.....	3	
Idaho.			Helena.....	T.		Vermont.		
Hailey.....	4		Kalispell.....	T.		Brattleboro.....	3	3.5
Ketchum.....	5		Nevada.			Burlington.....	4	0.0
McCall.....	5		Austin.....	11		Northfield.....	3	
Mackay.....	1		Hylton.....	6		St. Johnsbury.....	3	
Montpelier.....	3		McGill.....	5		Wells River.....	4	
Oxford Ranger Sta.	14		North Fork.....	3		Washington.		
Soldier Creek.....	7		Tonopah.....	3		Cascade Tunnel.....	31	
Spencer.....	8		New Hampshire.			Laurier.....	1	
Iowa.			Berlin.....	1		North Yakima.....	1	
Charles City.....	T.		Concord.....	4	3.0	Stampede.....	5	
Des Moines.....	0	*	Keene.....	4		Walla Walla.....	T.	
Dubuque.....	T.	0.0	Lancaster.....	6		Wisconsin.		
Sioux City.....	0	*	New Mexico.			Ashland.....	4	
Maine.			Chama.....	1		Barron.....	2	
Bangor.....	16	3.0	Tres Piedras.....	3		Eau Claire.....	3	
Gardiner.....	4	1.0	New York.			Grand Rapids.....	10	
Greenville.....	5	5.5	Albany.....	T.	0.0	Green Bay.....	T.	0.5
Lewiston.....	4	5.0	Alfred.....	3		La Crosse.....	2	*
Millinocket.....	14		Canton.....	1		Medford.....	5	
Van Buren.....	17		Cazenovia.....	1		Park Falls.....	8	
Massachusetts.			Cooperstown.....	T.		Wausau.....	5	†
Amherst.....	4		Corinth.....	4		Wyoming.		
Boston.....	2		Lake Placid.....	7		Buffalo.....	T.	
Concord.....	6		Plattsburg.....	3		Cheyenne.....	T.	
Fitchburg.....	3		Roxbury.....	2		Dome Lake.....	8	
Holyoke.....	3		Saranac Lake.....	8		Evanson.....	T.	
Williamstown.....	1		North Dakota.			South Pass City.....	T.	
Michigan.			Bismarck.....	T.	0.0	Yellowstone Park.....	T.	
Alpena.....	4	0.0	Devils Lake.....	T.				

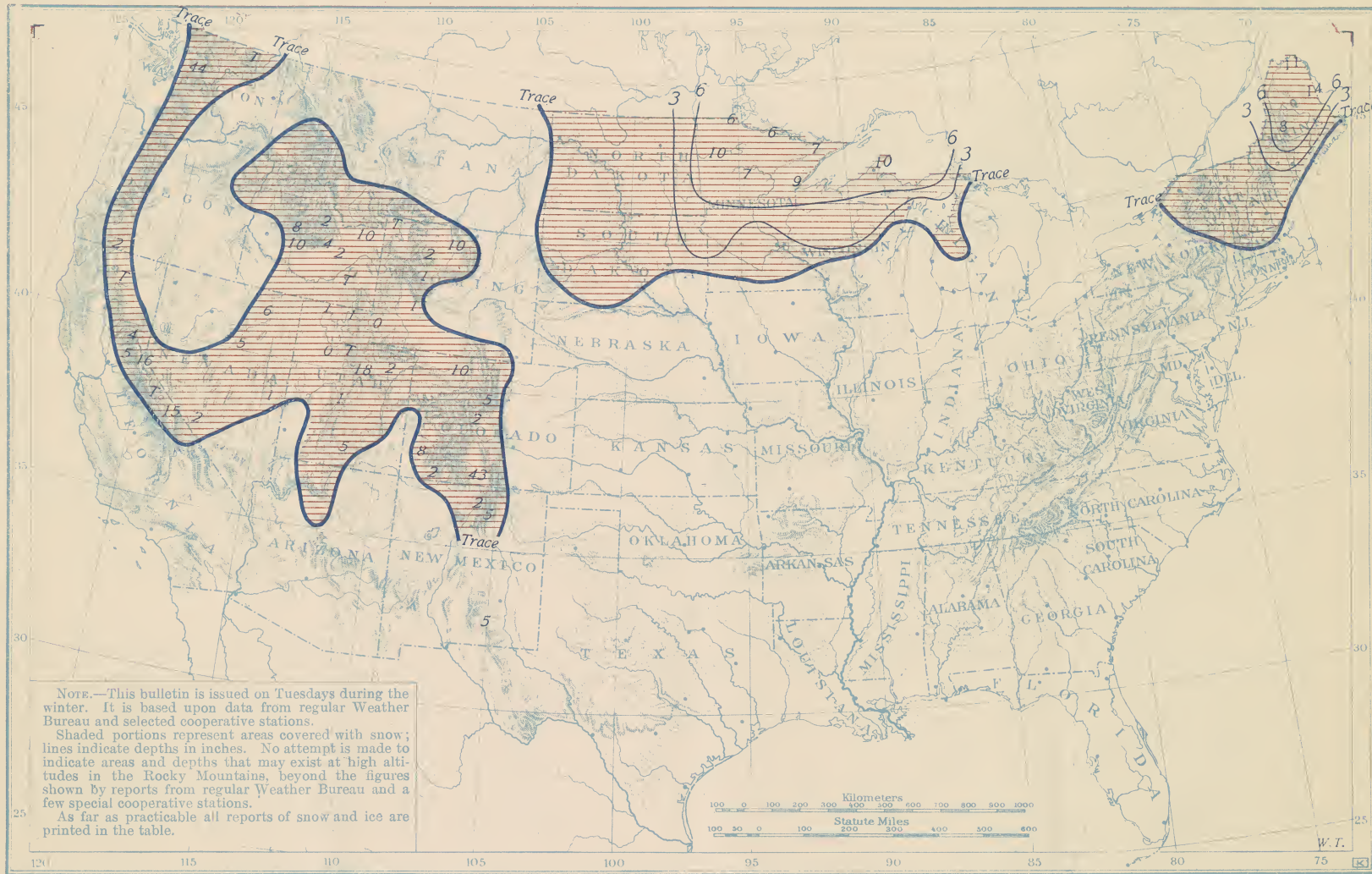
* Shore ice. † Floating ice. T. indicates trace.



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SNOW AND ICE BULLETIN.



WASHINGTON, D. C., December 17, 1918.

GENERAL SUMMARY OF THE WEATHER DURING THE PAST WEEK.

The storm over the Middle West, referred to in the issue of last week, experienced some redevelopment, and during Tuesday and Wednesday rain or snow continued over most districts to eastward of the Mississippi River, snow being confined, however, to the more northern portions.

By Friday morning another storm of considerable proportions had moved to Oklahoma and northern Texas, and precipitation had extended northeastward to the Great Lakes. Heavy rains had fallen from central Texas to the lower Ohio Valley, and locally in adjacent regions, and light snow at a few points in the vicinity of Lake Superior. This storm moved to the Atlantic coast during Friday and Saturday, and general rains occurred in all districts from the Mississippi River eastward, the falls being heavy over the States from the Carolinas to southern New England. During Sunday and Monday clear and moderately cool weather prevailed very generally throughout the country, and at this writing similar conditions exist, except for local rains in Virginia and North Carolina, and local snows over the eastern Rocky Mountain slope and in the Lake Superior region.

DEPTH OF SNOW.

Only slight falls of snow occurred during the week, and the amounts now on the ground, save in a few instances, are less than last week. In the Sierra Nevada there has been a considerable reduction in the amount of snow in the high ranges and reductions in the depth, though less extensive, are reported from most of the remaining western mountain districts. Compared with the same date a year ago the extent of the snow-covered area is far less and the depths insignificant, save in a few areas of the far West where there is now more snow.

General rains during the past week have put the soil in good condition as regards moisture content over practically the entire winter wheat area, and the condition of that crop is now the best in a number of years. The warm weather has permitted the continued growth of pasturage, and stock grazing is still possible on the ranges.

ICE IN RIVERS AND HARBORS.

Small increases in amounts of ice in the far northern districts are noted as compared with those reported last week, but due to continued warmth practically all the principal lakes and rivers are still open. Compared with the same date in December, 1917, a wide divergence exists. At that time heavy ice covered all northern streams and lakes, gorges had formed in the Ohio and lower Missouri Rivers, and more or less ice was reported as far south as central Arkansas and the northern portions of the Gulf States.

The following reports on ice and snow conditions from special points have been received:

Hartford, Conn., December 17.—The Connecticut Valley in New Hampshire, Vermont, and northern Massachusetts has from 2 to 3 inches of snow; in southern Massachusetts and in Connecticut there is practically none.

DEPTH OF SNOW AND THICKNESS OF ICE AT 8 P. M., DECEMBER 16, 1918.

Stations.	Snow.	Ice in rivers, harbors, etc.	Stations.	Snow.	Ice in rivers, harbors, etc.	Stations.	Snow.	Ice in rivers, harbors, etc.
<i>Arizona.</i>	<i>Inches</i>	<i>Inches</i>	<i>Michigan—Contd.</i>	<i>Inches</i>	<i>Inches</i>	<i>North Dakota.</i>	<i>Inches</i>	<i>Inches</i>
Flagstaff.....	1		Iron River.....	5		Bismarek.....	T.	†
<i>California.</i>			Maple Ridge.....	7		Devils Lake.....	1	
Emigrant Gap....	5		Marquette.....	7	0.0	Ellendale.....	2	*
Huntington Lake..	15		Newberry.....	7		Williston.....	T.	*
McCloud.....	T.		<i>Minnesota.</i>			<i>Oregon.</i>		
Sierraville.....	4		Canby.....	4		Baker.....	T.	
Summit.....	16		Collegeville.....	T.		Siskiyou.....	2	
Yosemite.....	T.		Duluth.....	9	5.0	<i>South Dakota.</i>		
<i>Colorado.</i>			Fort Ripley.....	6		Huron.....	T.	4.0
Cumbres.....	43		Grand Meadow...	T.		Pierre.....	T.	*
Dillon.....	5		Grandy.....	4		Rapid City.....	T.	
Durango.....	2		International Falls	6		<i>Utah.</i>		
Leadville.....	2		Leech Lake Dam..	7		Duchesne.....	2	
Rico.....	8		Minneapolis.....	T.		East Portal.....	18	
Steamboat Springs	10		Moorhead.....	6	6.0	Escalante.....	5	
<i>Connecticut.</i>			Roseau.....	6		Kelton.....	1	
West Cornwall....	2		St. Paul.....	0	*	Logan.....	1	
<i>Idaho.</i>			Thief River Falls.	10		Manti.....	1	
Hailey.....	2		Wheaton.....	4		Moab.....	T.	
Ketchum.....	4		Winton.....	7		Salt Lake City..	T.	
North Star Mine..	2		<i>Montana.</i>			<i>Vermont.</i>		
Pocatello.....	T.		Haugan.....	4		Brattleboro.....	2	5.5
Soldier Creek....	10		<i>Nebraska.</i>			Northfield.....	T.	
Spencer.....	10		Valentine.....	T.		St. Johnsbury...	1	
<i>Maine.</i>			<i>Nevada.</i>			Wells River.....	3	
Bangor.....	6	4.0	Hylton.....	5		White River J'n.	2	
Gardiner.....	3	2.0	McGill.....	1		<i>Washington.</i>		
Greenville.....	8	7.0	North Fork.....	6		Cascade Tunnel..	44	
Houlton.....	14		Tonopah.....	2		Laurier.....	T.	
Lewiston.....	2	5.0	<i>New Hampshire.</i>			<i>Wisconsin.</i>		
Portland.....	T.	0.0	Berlin.....	T.		Barron.....	4	
Van Buren.....	11		Concord.....	1	2.0	Eau Claire.....	T.	
<i>Massachusetts.</i>			Durham.....	4		Green Bay.....	0	*
Amherst.....	T.		Hanover.....	1		Medford.....	5	
Fitchburg.....	T.		Keene.....	2		Park Falls.....	5	
Turners Falls....	2		Lancaster.....	3		Wausau.....	5	0.5
Williamstown....	T.		W. Stewartstown.	2		<i>Wyoming.</i>		
<i>Michigan.</i>			<i>New Mexico.</i>			Cheyenne.....	T.	
Alpena.....	1	0.0	Cloudcroft.....	5		Dome Lake.....	10	
Big Rapids.....	T.		Tres Piedras.....	2		Dubois.....	1	
Cadillac.....	1		Truchas.....	5		South Pass City..	1	
Calumet.....	10		<i>New York.</i>			Valley.....	2	
Escanaba.....	T.	0.0	Canton.....	T.		Yellowstone Park.	T.	
Houghton.....	6	1.0	Sacandaga.....	2				

*Shore ice. †Floating ice. T. indicates trace.

Albany, N. Y., December 17.—In the upper Hudson Valley there is a little snow, usually only a trace, but as much as 2 inches at Sacandaga; there is none in the Mohawk Valley. There is no ice in either river.

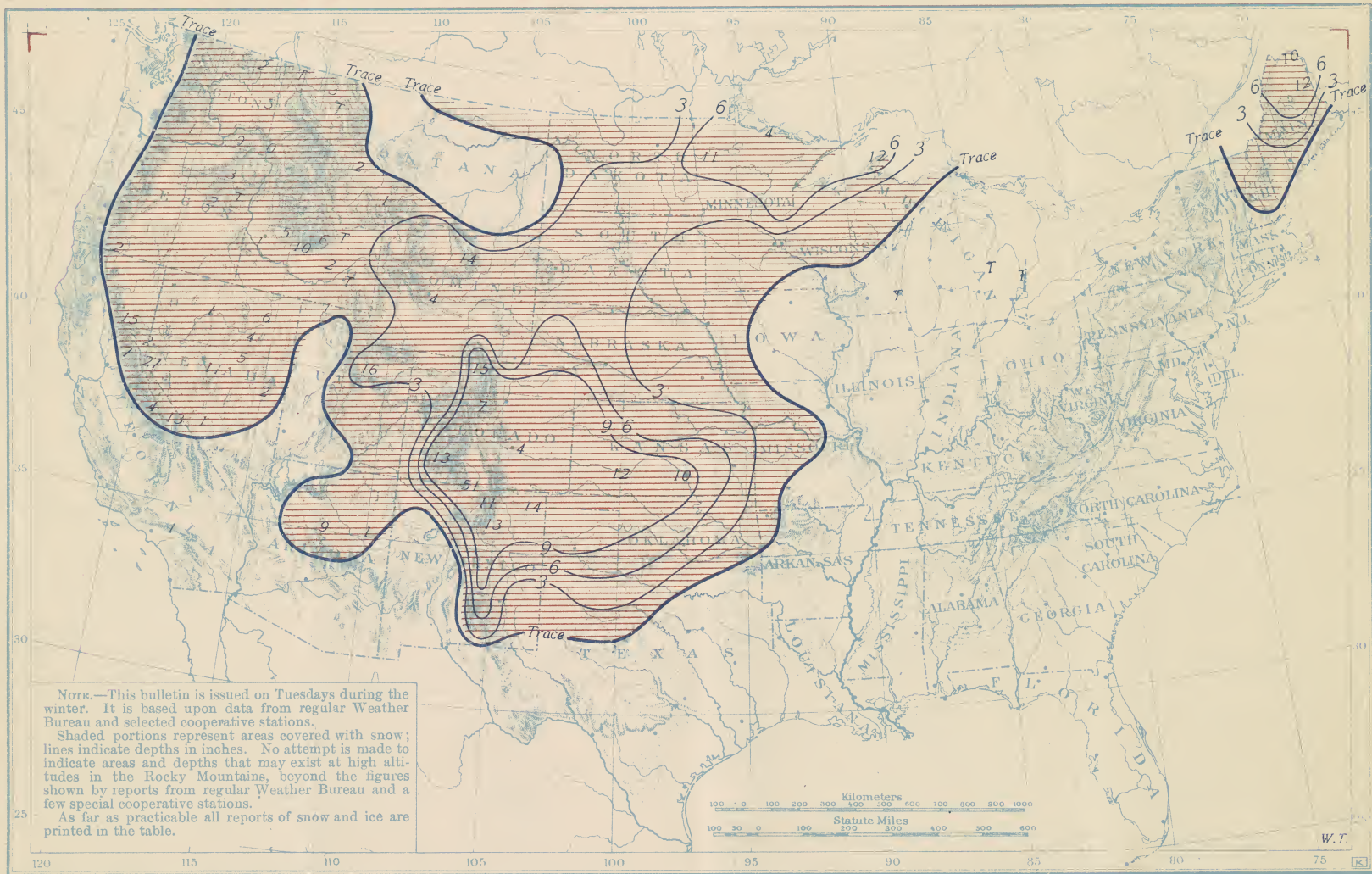
Phoenix, Ariz., December 17.—On Mount Graham, at 8,000 feet elevation, the depth of snow is reported as 14 inches.

P. C. DAY, Climatologist and Chief of Division.

THE UNIVERSITY OF CHICAGO PRESS

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SNOW AND ICE BULLETIN.



WASHINGTON, D. C., December 26, 1918.

DEPTH OF SNOW AND THICKNESS OF ICE AT 8 P. M., DECEMBER 23, 1918.

GENERAL SUMMARY OF THE WEATHER DURING THE PAST WEEK.

Unusual warmth and widespread precipitation were the marked features of the weather during the week. The first few days brought local rains or snows in the Southwest and along the eastern slope of the Rocky Mountains, but otherwise generally clear and mild weather prevailed. By Friday morning, however, general rains had set in over the Southwest and also in the Middle and North Pacific Coast States. During Saturday and Sunday the eastern rain area overspread practically all portions of the country from the Great Plains to the Atlantic coast, the falls during this period exceeding 6 inches at points in the Gulf States, and being heavy locally in the Ohio Valley and southern Appalachian Mountain districts. In the far West the rain area extended into southern California, but there was no eastward extension, and by Sunday morning the weather had cleared in practically all districts to westward of the Rocky Mountains. During Sunday a second storm developed in the Southwest, and by Monday morning precipitation was general from the Rio Grande to the middle Rocky Mountain and Plains regions, with snow from Oklahoma and central Texas northward, the falls being heavy in portions of Kansas and the Texas Panhandle. At the morning observation of Tuesday the storm had moved to the lower Ohio Valley, with precipitation over a wide area embracing the central valleys, Gulf States, and the Plains region from Nebraska and Colorado southward. Heavy rains had fallen in the lower Mississippi Valley, and rains were general to the eastward and southward of the storm center and snows to the northward and westward, the falls being heavy over eastern Kansas and portions of Missouri, Iowa, and Illinois.

DEPTH OF SNOW.

In New England the increasing warmth at the close of the week reduced somewhat the depth and extent of the snow cover, and there was likewise generally less snow in the upper Lakes region than at the close of the week preceding. Over the Rocky Mountain States the depth of the snow cover was nearly everywhere increased, and a large area in the middle Plains, bare a week ago, now has a covering ranging from 6 to 12 inches. To westward of the Rocky Mountains there was but little addition to the snow cover previously reported, save at points in New Mexico, northern Arizona, and the mountains of central California.

At the close of the week the snow-covered area to westward of the Mississippi had increased materially, but to eastward the ground was still mostly bare. The snow cover over the principal winter wheat districts to westward of the Mississippi afforded ample protection from the moderate cold of the past few days over that region.

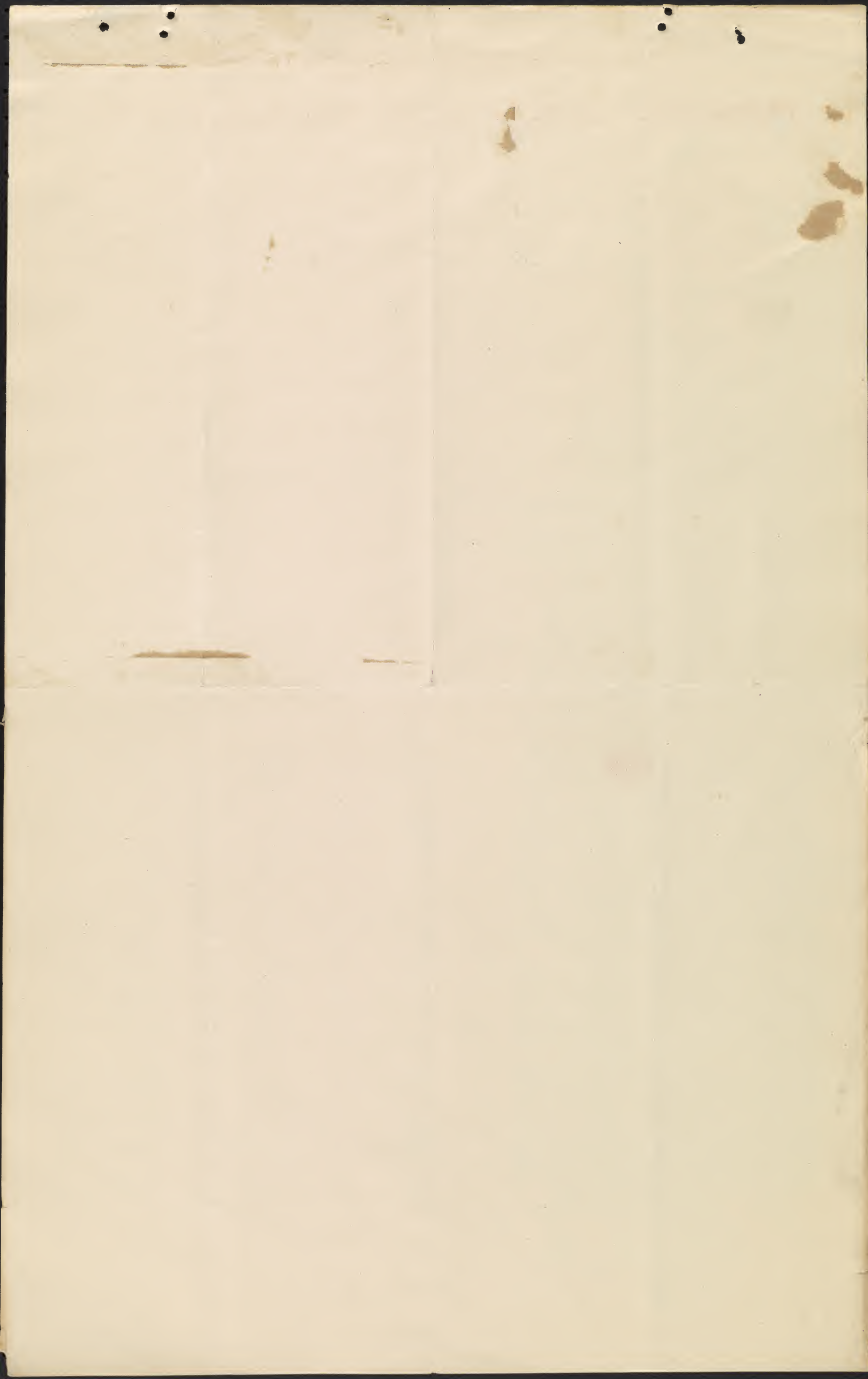
ICE IN RIVERS AND HARBORS.

Moderately cold weather over the Northeastern States during most of the week caused the formation of some additional ice in New England, and at points in the interior of Maine it is now more than a foot thick. Cold weather at the close of the week increased to some extent the ice in the upper Missouri and its tributaries, but with the exception of small amounts in some of the harbors of Lake Superior the remaining rivers and lakes are still practically free of ice.

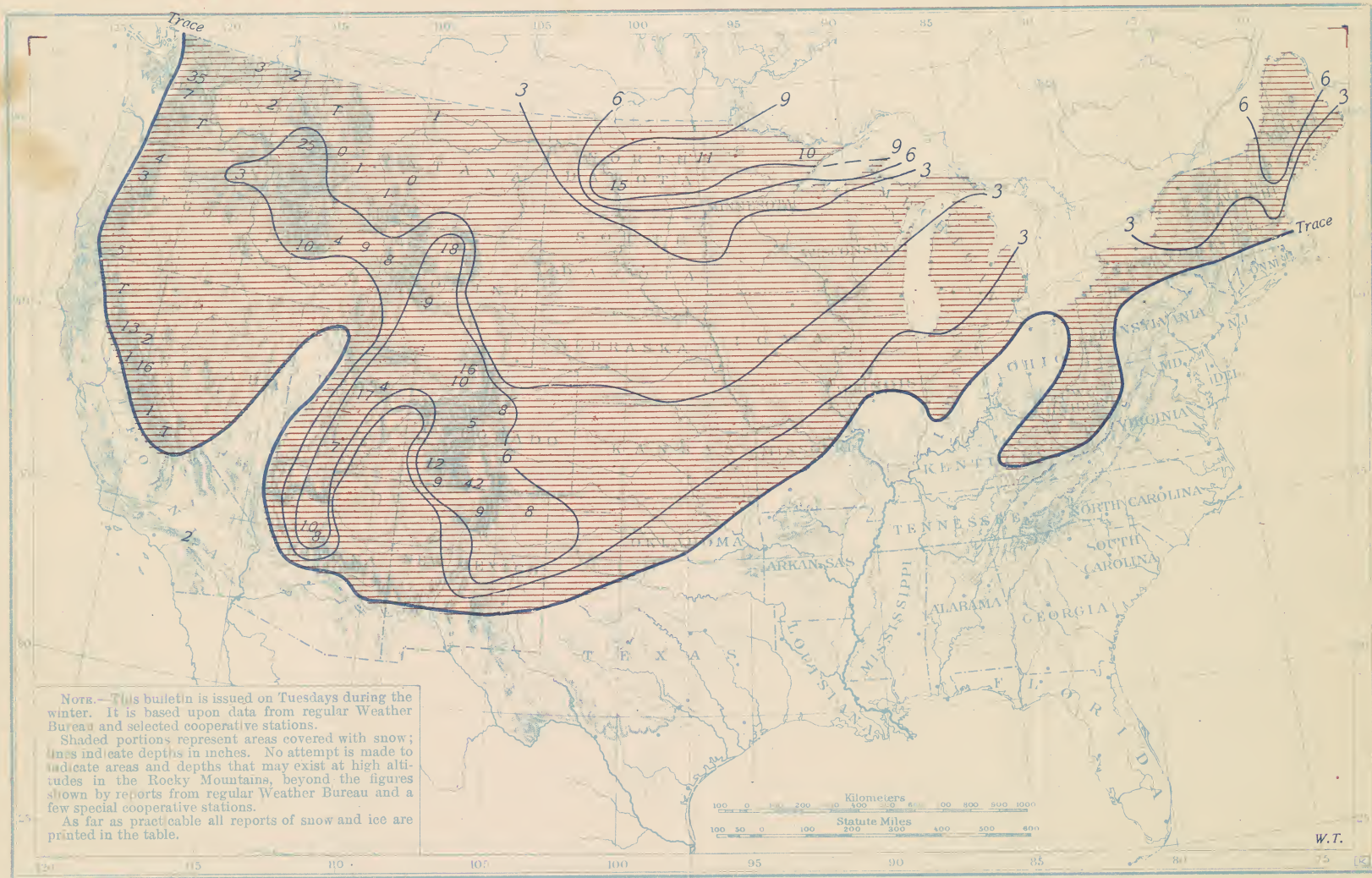
P. C. DAY, Climatologist and Chief of Division.

Stations.	Snow.	Ice in rivers, harbors, etc.	Stations.	Snow.	Ice in rivers, harbors, etc.	Stations.	Snow.	Ice in rivers, harbors, etc.
Arizona.	Inches	Inches	Michigan—Contd.	Inches	Inches	New Mexico—Con.	Inches	Inches
Flagstaff.....	9	.....	Ironwood.....	5	.....	Roswell.....	2	.....
Grand Canyon.....	7	.....	Maple Ridge.....	1	.....	Santa Fe.....	7	.....
Pinto.....	1	.....	Marquette.....	2	0.0	Tres Piedras.....	11	.....
Prescott.....	4	.....	Port Huron.....	T.	0.0	Truchas.....	13	.....
Williams.....	7	.....	Saginaw.....	T.	0.0	North Dakota.		
Arkansas.			Minnesota.			Bismarck.....	4	2.0
Bentonville.....	1	.....	Collegeville.....	T.	.....	Devils Lake.....	1	.....
California.			Duluth.....	8	4.0	Ellendale.....	3	.....
Emigrant Gap.....	7	.....	Fort Ripley.....	4	.....	Williston.....	T.	†
Huntington Lake.....	13	.....	Grandy.....	1	.....	Oklahoma.		
Inskip.....	15	.....	International Falls	4	.....	Oklahoma.....	6	.....
McCloud.....	T.	.....	Leech Lake Dam.	6	.....	Oregon.		
Portola.....	1	.....	Minneapolis.....	T.	.....	Baker.....	T.	.....
Sierraville.....	2	.....	Moorhead.....	5	9.0	Hilgard.....	3	.....
Squirrel Inn.....	1	.....	Roseau.....	6	.....	Prairie City.....	2	.....
Summit.....	27	.....	St. Paul.....	T.	*	Siskiyou.....	2	.....
Yosemite.....	4	.....	Thief River Falls.	11	.....	South Dakota.		
Colorado.			Wheaton.....	3	.....	Huron.....	2	6.5
Cumbres.....	51	.....	Winton.....	6	.....	Pierre.....	4	†
Denver.....	11	.....	Worthington.....	T.	.....	Rapid City.....	3	.....
Dillon.....	7	.....	Missouri.			Yankton.....	T.	†
Durango.....	7	.....	Columbia.....	2	.....	Texas.		
Grand Junction.....	2	.....	Kansas City.....	3	0.0	Abilene.....	T.	.....
Leadville.....	4	.....	St. Joseph.....	1	0.0	Amarillo.....	11	.....
Pueblo.....	4	.....	Montana.			Utah.		
Rico.....	13	.....	Belton.....	3	.....	Duchesne.....	3	.....
Idaho.			Bozeman.....	1	.....	East Portal.....	16	.....
Boise.....	1	.....	Elliston.....	2	.....	Kelton.....	1	.....
Hailey.....	2	.....	Haugan.....	6	.....	Manti.....	1	.....
Ketchum.....	6	.....	Havre.....	T.	.....	Modena.....	T.	.....
Mackay.....	T.	.....	Helena.....	T.	.....	Salt Lake City.....	T.	.....
Oxford Ranger Sta.	20	.....	Kalispell.....	T.	.....	Vermont.		
Pocatello.....	T.	.....	Red Lodge.....	6	.....	Brattleboro.....	0	4.5
Soldier Creek.....	10	.....	Nebraska.			Northfield.....	T.	.....
Wallace.....	T.	.....	Alliance.....	7	.....	St. Johnsbury.....	T.	.....
Iowa.			Guide Rock.....	T.	.....	Washington.		
Forest City.....	T.	.....	Halsey.....	6	.....	Laurier.....	2	.....
Pocahontas.....	T.	.....	Imperial.....	11	.....	North Yakima.....	1	.....
Sioux City.....	†	.....	Lincoln.....	T.	.....	Spokane.....	3	.....
Kansas.			North Platte.....	4	.....	Wisconsin.		
Concordia.....	3	.....	Omaha.....	T.	†	Ashland.....	4	.....
Dodge City.....	12	.....	Ravenna.....	T.	.....	Grand Rapids.....	T.	.....
Iola.....	6	0.0	Valentine.....	3	.....	Medford.....	1	.....
Topeka.....	5	.....	Nevada.			Milwaukee.....	T.	0.0
Wichita.....	10	.....	Arthur.....	4	.....	Park Falls.....	2	.....
Maine.			Austin.....	11	.....	Wausau.....	T.	†
Bangor.....	T.	7.0	Hylton.....	5	.....	Wyoming.		
Gardiner.....	T.	2.0	McGill.....	2	.....	Alta.....	3	.....
Greenville.....	4	14.0	North Fork.....	6	.....	Casper.....	4	.....
Houlton.....	12	.....	Tonopah.....	1	.....	Cheyenne.....	3	.....
Lewiston.....	T.	6.0	Winnemucca.....	1	.....	Dome Lake.....	14	.....
Millinocket.....	8	.....	New Hampshire.			Dubois.....	1	.....
Orono.....	4	.....	Berlin.....	T.	.....	Evanston.....	T.	.....
Van Buren.....	10	.....	Concord.....	T.	4.0	Fox Park.....	15	.....
Michigan.			Durham.....	T.	.....	Lander.....	4	.....
Calumet.....	12	.....	Hanover.....	T.	.....	Sheridan.....	T.	.....
Escanaba.....	T.	0.0	New Mexico.			South Pass City.....	1	.....
Houghton.....	9	1.5	Cloudcroft.....	12	.....	Valley.....	2	.....
			Des Moines.....	14	.....	Yellowstone Park.	T.	.....

*Shore ice. †Floating ice. T. indicates trace.



SNOW AND ICE BULLETIN.



WASHINGTON, D. C., January 2, 1919.

DEPTH OF SNOW AND THICKNESS OF ICE AT 8 P. M., DECEMBER 30, 1918.

GENERAL SUMMARY OF THE WEATHER DURING THE PAST WEEK.

Moderate warmth and a very unusual absence of precipitation, considering the period of the year, over nearly all parts of the country were the important features of the weather during the past week.

The storm referred to last week as central Tuesday morning over the lower Ohio Valley moved rapidly northeastward, and by Wednesday morning it was central in the St. Lawrence Valley, light rains or snows having fallen during the preceding 24 hours over much of the country from the Mississippi River eastward. At the same time the weather continued clear in the central and western districts, and with local exceptions fair weather prevailed in all parts of the country until near the close of the week. By Monday morning a storm of decided character had developed in the far Southwest and light snows had set in over the Rocky Mountain region and along the northern border as far eastward as the Great Lakes and northern New England, and local rains were reported from the Gulf States and the north Pacific coast. At the same time strong high pressure and the severest cold of the season were advancing into the northern districts between the Rocky Mountains and the Great Lakes. The storm conditions moved rapidly eastward during Monday, and by Tuesday morning rain or snow was falling over much of the country from the Rocky Mountains eastward. The cold area had advanced into the Great Plains region, with zero temperatures as far south as central Kansas and -30° at points in North Dakota.

DEPTH OF SNOW.

The storm over the northeastern districts at the beginning of the week added several inches to the depth of the snow cover in portions of the Lakes region and thence eastward over northern New York to central New England, while that at the close brought more or less snow to the Rocky Mountain and Plateau regions, and from the upper Lakes westward to the mountains, the falls in portions of North Dakota exceeding 10 inches. In the far western mountains there was practically no snow during the week and a large part of that previously accumulated in the high mountains of central California disappeared. In the southern Rocky Mountain region and the adjacent portions of the Great Plains there was a material decrease in the depth reported at the close of the preceding week. A large part of the country now has a covering of snow, but the amounts are very generally light.

The depth of the cover in the upper Lakes region is much below the normal for this period of the year, and similar conditions exist in northern New England and in the mountains of California.

The major part of the winter wheat area to the westward of the Mississippi River is fairly well protected from the cold of the past few days. To the eastward of the Mississippi the greater part of the winter grain area is still uncovered, but no injurious cold has been experienced.

ICE IN RIVERS AND HARBORS.

Moderately cold weather at the beginning of the week over the upper Missouri Valley and the Lakes region increased to some extent the small amounts of ice previously reported, and some new ice formed at a few points. Increases in ice thickness were reported from a few points in New England, but generally there was less ice in that region at the close of the week than at the beginning.

The following reports on snow and ice conditions from special points have been received:

Concord, N. H., December 30.—The ice in the Merrimac River here went out last Wednesday afternoon.

Brattleboro, Vt., December 30.—Though the ground is bare in the valley here, snow is visible back on the hills near by. The Connecticut River is open in places.

Hartford, Conn., December 31.—In the upper Connecticut Valley the depth of snow ranges from a trace to 6 inches. Over the lower valley the ground is bare. The river is still open below Brattleboro, Vt.

Albany, N. Y., December 31.—In the Hudson and Mohawk Valleys the snow is not reported as more than 2 inches deep anywhere, that depth being reported from Utica. The rivers are mostly open.

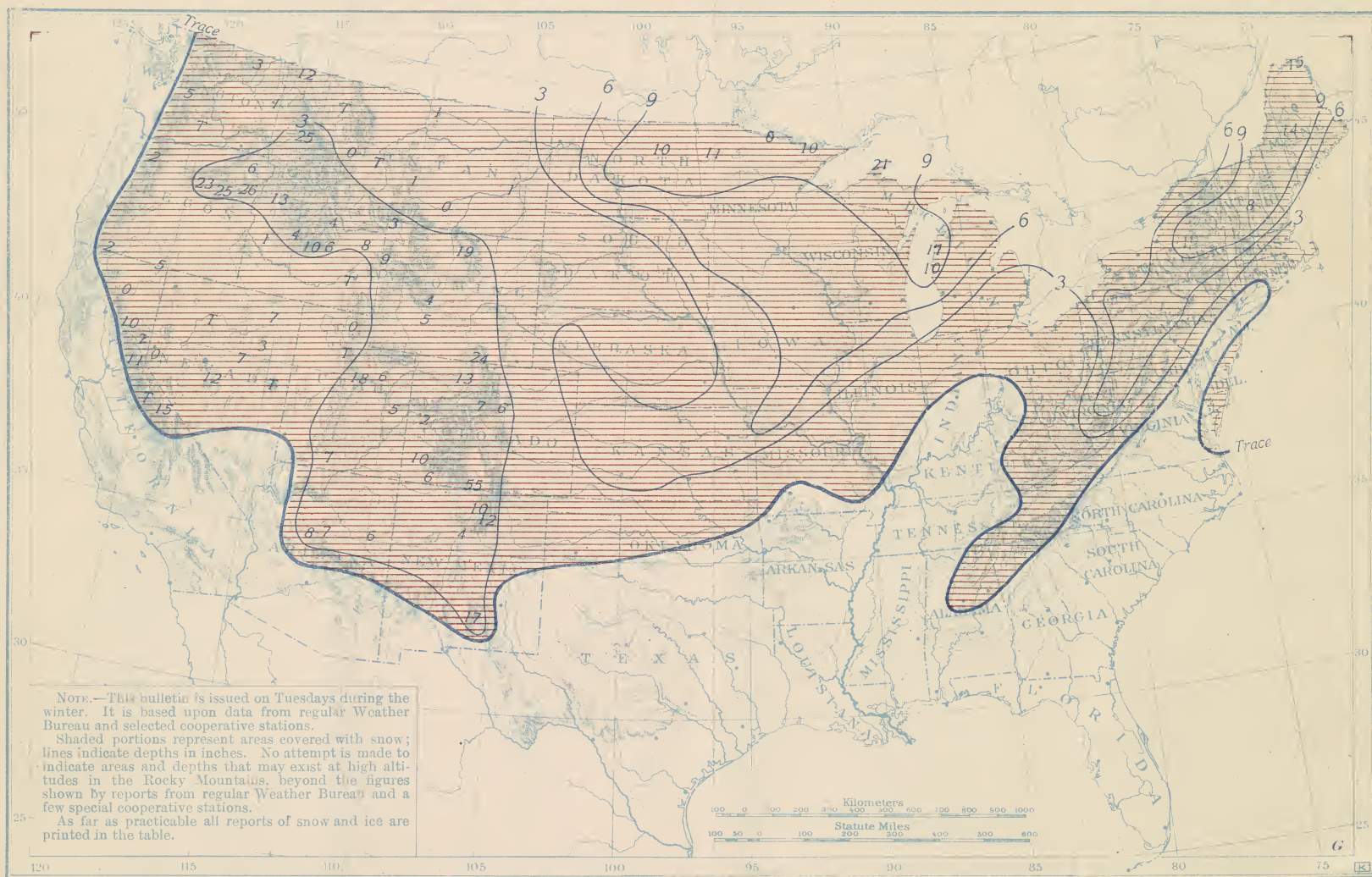
P. C. DAY, Climatologist and Chief of Division.

Stations.	Snow.	Ice in rivers, harbors, etc.	Stations.	Snow.	Ice in rivers, harbors, etc.	Stations.	Snow.	Ice in rivers, harbors, etc.
<i>Arizona.</i>	<i>Inches</i>	<i>Inches</i>	<i>Michigan—Contd.</i>	<i>Inches</i>	<i>Inches</i>	<i>North Dakota—Cd.</i>	<i>Inches</i>	<i>Inches</i>
Flagstaff.....	8	.....	Grand Haven.....	4	.....	Williston.....	5	7.5
Fort Apache.....	2	.....	Grand Rapids.....	2	.....	<i>Ohio.</i>		
Prescott.....	6	.....	Harrisville.....	5	.....	Marion.....	T.	.....
Williams.....	10	.....	Houghton.....	8	5.0	Tiffin.....	T.	.....
<i>California.</i>			Lansing.....	4	.....	Toledo.....	T.	0.0
Emigrant Gap.....	1	.....	Ludington.....	2	.....	<i>Oklahoma.</i>		
Inskip.....	13	.....	Manistee.....	3	.....	Oklahoma.....	T.	.....
Sierraville.....	2	.....	Marquette.....	2	0.0	<i>Oregon.</i>		
Squirrel Inn.....	2	.....	Port Huron.....	T.	1.0	Baker.....	T.	.....
Summit.....	16	.....	Saginaw.....	4	1.0	Detroit.....	3	.....
Yosemite.....	1	.....	<i>Minnesota.</i>			Hilgard.....	3	.....
<i>Colorado.</i>			Duluth.....	5	8.0	Prairie City.....	2	.....
Cumbres.....	42	.....	Grand Meadow.....	2	.....	Siskiyou.....	5	.....
Denver.....	8	.....	Leech Lake Dam.....	6	.....	Welches.....	4	.....
Durango.....	9	.....	Minneapolis.....	2	.....	<i>Pennsylvania.</i>		
Grand Junction.....	2	.....	Moorhead.....	10	10.0	Clarion.....	2	.....
Leadville.....	3	.....	St. Paul.....	3	+	Confluence.....	1	.....
Pueblo.....	3	.....	Wheaton.....	3	.....	Drifton.....	2	.....
Rico.....	12	.....	Winton.....	10	.....	Erie.....	2	0.0
Steamboat Springs.....	10	.....	<i>Missouri.</i>			Greensboro.....	1	.....
<i>Connecticut.</i>			Brunswick.....	10	.....	Pittsburgh.....	1	0.0
Hartford.....	0	+	Hannibal.....	1	*	Warren.....	2	.....
<i>Idaho.</i>			Kansas City.....	4	.....	West Newton.....	1	.....
Boise.....	1	.....	Lamar.....	2	.....	<i>South Dakota.</i>		
Hailey.....	1	.....	Maryville.....	4	.....	Huron.....	2	10.0
Ketchum.....	6	.....	Rolla.....	1	.....	Pierre.....	2	*
Lewiston.....	1	0.0	St. Joseph.....	2	+	Rapid City.....	T.	.....
North Star Mine.....	4	.....	<i>Montana.</i>			Yankton.....	T.	4.0
Oxford Ranger Sta.....	25	.....	Bozeman.....	1	.....	<i>Texas.</i>		
Pocatello.....	1	.....	Havre.....	1	.....	Amarillo.....	6	.....
Porthill.....	2	.....	Helena.....	T.	.....	<i>Utah.</i>		
Soldier Creek.....	10	.....	Kalispell.....	T.	.....	East Portal.....	17	.....
Spencer.....	9	.....	Red Lodge.....	4	.....	Kelton.....	1	.....
Wallace.....	2	.....	<i>Nebraska.</i>			Manti.....	3	.....
<i>Illinois.</i>			Alliance.....	4	.....	Modena.....	1	.....
Chicago.....	2	.....	Guide Rock.....	2	.....	Salt Lake City.....	T.	.....
Macomb.....	7	.....	McCook.....	4	.....	<i>Vermont.</i>		
Peoria.....	3	0.0	North Platte.....	2	.....	Brattleboro.....	0	2.5
<i>Indiana.</i>			Omaha.....	T.	?	Burlington.....	6	0.0
Marion.....	1	.....	Valentine.....	1	.....	Northfield.....	5	.....
South Bend.....	3	.....	<i>Nevada.</i>			St. Johnsbury.....	4	.....
<i>Iowa.</i>			Hylton.....	7	.....	<i>Washington.</i>		
Albia.....	6	.....	North Fork.....	7	.....	Cascade Tunnel.....	35	.....
Charles City.....	3	.....	Winnemucca.....	1	.....	Laurier.....	3	.....
Davenport.....	4	+	<i>New Hampshire.</i>			Spokane.....	2	.....
Des Moines.....	2	*	Concord.....	T.	0.0	Stampede.....	7	.....
Dubuque.....	5	+	Durham.....	5	.....	<i>West Virginia.</i>		
Keokuk.....	3	*	<i>New Jersey.</i>			Davis.....	6	.....
Sioux City.....	T.	+	Trenton.....	0	*	Elkins.....	1	0.0
<i>Kansas.</i>			<i>New Mexico.</i>			Fairmont.....	2	.....
Concordia.....	3	.....	Corona.....	6	.....	Holcomb.....	4	.....
Dodge City.....	5	.....	Des Moines.....	8	.....	Parkersburg.....	T.	0.0
Iola.....	1	0.0	Roswell.....	T.	.....	Rowlesburg.....	5	.....
Marion.....	4	.....	Santa Fe.....	5	.....	<i>Wisconsin.</i>		
Topeka.....	4	.....	Tres Piedras.....	9	.....	Ashland.....	5	.....
Wichita.....	5	.....	<i>New York.</i>			Brodhead.....	6	.....
<i>Maine.</i>			Albany.....	T.	0.0	Delavan.....	5	.....
Bangor.....	2	9.0	Beaver River.....	3	.....	Fond du Lac.....	5	.....
Cornish.....	6	.....	Buffalo.....	1	0.0	Green Bay.....	T.	3.0
Eastport.....	T.	0.0	Canton.....	3	.....	La Crosse.....	1	+
Gardiner.....	6	4.0	Cazenovia.....	2	.....	Madison.....	5	.....
Greenville.....	8	12.5	Herkimer.....	4	.....	Medford.....	3	.....
Lewiston.....	5	5.0	Lowville.....	3	.....	Milwaukee.....	5	0.0
Millinocket.....	8	.....	Malone.....	3	.....	Park Falls.....	2	.....
Portland.....	3	0.0	Ogdensburg.....	5	.....	Wausau.....	T.	1.5
<i>Massachusetts.</i>			Oswego.....	4	0.0	<i>Wyoming.</i>		
Boston.....	T.	0.0	Plattsburg.....	4	.....	Alta.....	8	.....
Williamstown.....	1	.....	Rochester.....	T.	0.0	Buffalo.....	4	.....
<i>Michigan.</i>			Rome.....	4	.....	Cheyenne.....	T.	.....
Alpena.....	4	0.0	Saranac Lake.....	4	.....	Dome Lake.....	18	.....
Battle Creek.....	5	.....	Syracuse.....	2	.....	Dubois.....	1	.....
Big Rapids.....	4	.....	Watertown.....	4	.....	Fox Park.....	16	.....
Bloomington.....	3	.....	<i>North Dakota.</i>			Lander.....	9	.....
Cadillac.....	3	.....	Bismarck.....	15	8.0	Sheridan.....	1	.....
Calumet.....	13	.....	Devils Lake.....	9	.....	Wyncote.....	2	.....
Escanaba.....	T.	+	Ellendale.....	5	.....	Yellowstone Park.....	1	.....

* Shore ice. † Floating ice. ‡ Ice gorged. § Measurement impracticable. T. indicates trace.



SNOW AND ICE BULLETIN.



WASHINGTON, D. C., January 7, 1919.

GENERAL SUMMARY OF THE WEATHER DURING THE PAST WEEK.

Over most districts there was a sharp change from the warmth and absence of general stormy conditions that had prevailed during much of the winter so far. The storm moving from the Southwest at the close of the preceding week had reached the Lakes region by Tuesday morning, attended by rain or snow over many sections of the country from the Rocky Mountains eastward. By the first of the year the storm had developed increased energy, and, while still central in the Lakes region, the area of precipitation had increased; heavy rains had occurred in the Ohio and lower Mississippi Valleys and adjoining regions, and considerable snow was reported from the middle Plains States and upper Mississippi Valley, and it was still snowing to the northward of the storm center and eastward to the New England coast.

The cold area advancing into the Great Plains at the close of the preceding week had extended into the Southwest, with zero temperatures in Oklahoma, northwestern Texas, and central New Mexico, and freezing weather had reached nearly to the Texas coast.

The storm in the Lakes region moved rapidly to the northeastward, but secondary storms over southeastern districts caused precipitation over the Atlantic coast districts until after the middle of the week. In the meantime the cold wave had advanced into the Gulf States, and during the closing days of the week it covered all eastern districts, the line of freezing extending into the central portions of the Florida Peninsula. The latter part of the week was clear and cold over nearly all districts, save for occasional light snows at points in the Mississippi Valley and Lakes region. At the close of the week the cold was moderating over the central valleys and eastern districts, and at this writing temperatures are still rising, with clear weather in nearly all portions of the country, save for local snows in the Lakes region and light rains from Arkansas southwestward to the Rio Grande.

DEPTH OF SNOW.

The storm of the early part of the week brought moderate additions to the amounts of snow already on the ground from the lower Missouri Valley northeastward to the Great Lakes and thence to New England, and considerable depths appear to have fallen in the Appalachian Mountain regions. Elsewhere to eastward of the Rocky Mountains the increase in depth over that reported last week is small.

From the Rocky Mountains westward there was practically no increase in the snow depth, and over portions of the Plateau and in the mountains of California the depths are now considerably less than a week ago.

There is now a substantial snow cover from Kansas and Missouri northward to the Canadian border and northeastward to the Great Lakes, and over the Appalachian Mountain regions from northern Alabama to New England. In the western mountain districts there appears to be about the normal amount in the high mountains of Colorado, New Mexico, and portions of Idaho; but in the Sierra and Cascade Ranges the amounts are still far below those common at the beginning of the second winter month.

The greater part of the winter wheat districts to westward of the Mississippi had a moderate snow protection during the period of severest cold.

ICE IN RIVERS AND HARBORS.

Cold weather during the entire week over the Northwest caused a marked increase in the amount of ice previously reported on the rivers of that region, and considerable amounts of new ice now appear as far south as central Kansas.

In the Lakes region ice is reported from most of the harbors, but the thickness is usually only a few inches. Due to colder weather near the end of the week, small additions were made to the ice thickness in New England, but no appreciable ice is reported on the Ohio River or the rivers of the Atlantic coast south of New England.

P. C. DAY, Climatologist and Chief of Division.

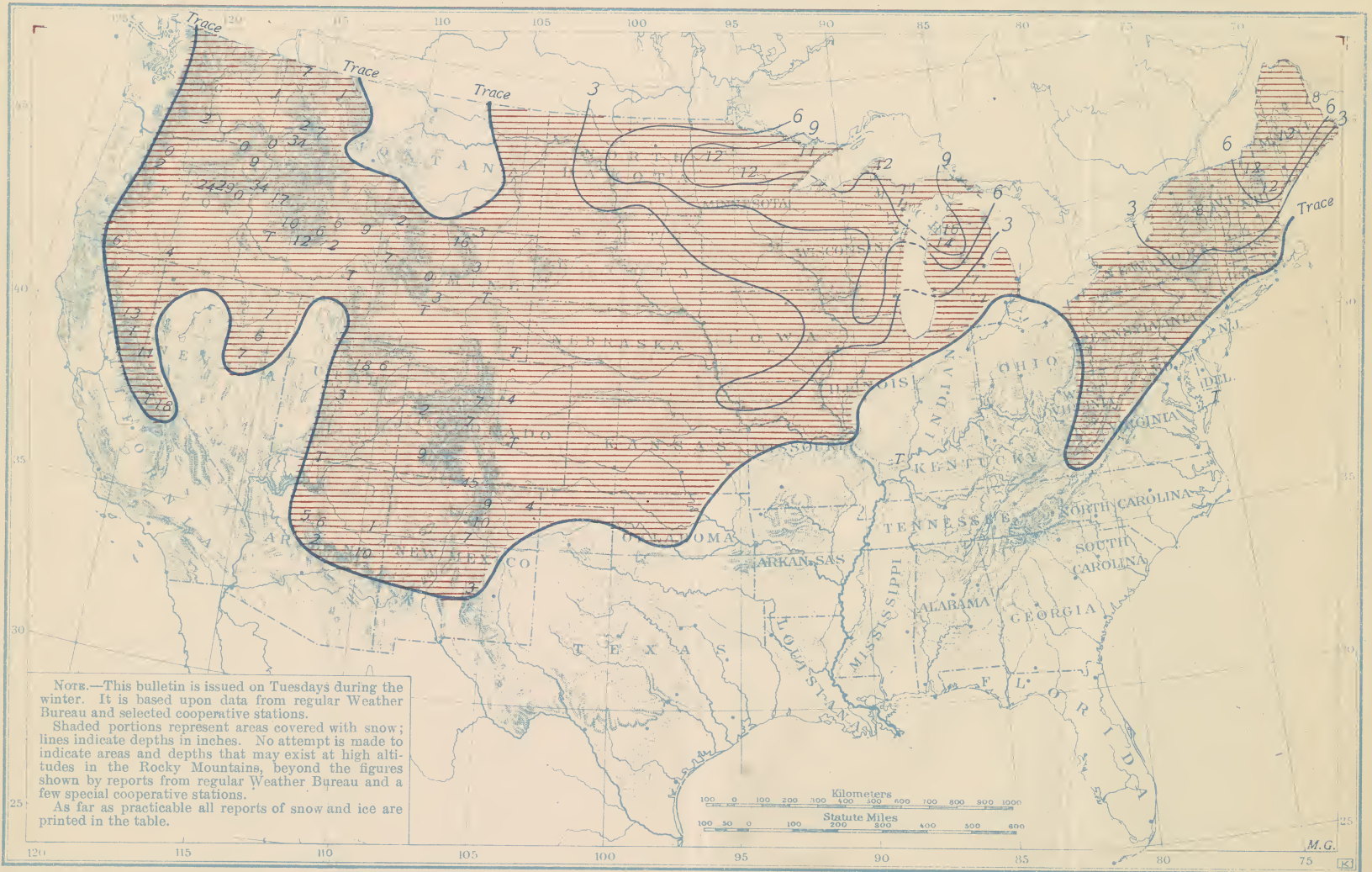
DEPTH OF SNOW AND THICKNESS OF ICE AT 8 P. M., JANUARY 6, 1919.

Stations.	Snow.	Ice in rivers, harbors, etc.	Stations.	Snow.	Ice in rivers, harbors, etc.	Stations.	Snow.	Ice in rivers, harbors, etc.
Alabama.	Inches	Inches	Michigan—Contd.	Inches	Inches	Ohio.	Inches	Inches
Birmingham.....	1		Lansing.....	2		Canton.....	3	
Arizona.....			Ludington.....	10		Cleveland.....	T.	1.0
Flagstaff.....	7		Manistee.....	17		Gallipolis.....	2	
Pinto.....	6		Marquette.....	10	2.0	Sandusky.....	T.	5.0
Prescott.....	4		Newberry.....	5		Toledo.....	T.	5.0
California.			Port Huron.....	1	3.5	Oregon.		
Huntington Lake.	15		Saginaw.....	4	6.0	Hilgard.....	3	
Inskip.....	10		Minnesota.			Siskiyou.....	2	
Summit.....	11		Duluth.....	6	10.0	Sled Springs.....	6	
Colorado.			Fort Ripley.....	6		Wallowa.....	2	
Cumbres.....	55		Grand Meadow.....	7		Welches.....	2	
Denver.....	6		Minneapolis.....	5		Pennsylvania.		
Durango.....	6		Moorhead.....	11	14.0	Confluence.....	3	
Grand Junction.....	2		St. Paul.....	6	5.0	Drifton.....	10	
Pueblo.....	1		Thief River Falls.....	11		Emporium.....	2	
Rico.....	10		Wheaton.....	6		Erie.....	3	4.0
Steamboat Springs	13		Winton.....	10		Greensboro.....	3	
Idaho.			Worthington.....	4		Harrisburg.....	4	†
Boise.....	1		Missouri.			Parkers Landing.....	3	
Ketchum.....	6		Brunswick.....	10		Pittsburgh.....	2	†
Lewiston.....	T.	†	Hannibal.....	1	*	Scranton.....	5	
Soldier Creek.....	10		Kansas City.....	6	6.0	Towanda.....	5	
Spencer.....	8		Rolla.....	2		Warren.....	2	
Wallace.....	2		St. Joseph.....	4	†	Rhode Island.		
Illinois.			Unionville.....	8		Kingston.....	1	
Antioch.....	5		Montana.			Providence.....	1	0.0
Chicago.....	3		Haugan.....	6		South Dakota.		
New Burnside.....	1		Havre.....	1		Huron.....	2	14.5
Peoria.....	2	0.0	Miles City.....	1		Pierre.....	2	8.0
Walnut.....	5		Red Lodge.....	2		Yankton.....	2	10.0
Indiana.			Nebraska.			Tennessee.		
Terre Haute.....	T.	†	Alliance.....	3		Chattanooga.....	4	0.0
Charles City.....	7		Auburn.....	5		Texas.		
Davenport.....	6	7.5	North Platte.....	2		Amarillo.....	2	
Des Moines.....	4	8.0	Omaha.....	3	9.0	Utah.		
Dubuque.....	7	4.0	Valentine.....	1		East Portal.....	18	
Iowa City.....	8		Nevada.			Watson.....	5	
Keokuk.....	3	7.5	Austin.....	12		Vermont.		
Pocahontas.....	3		Hylton.....	7		Brattleboro.....	8	6.0
Sioux City.....	3	*	New Hampshire.			Burlington.....	4	0.0
Kansas.			Berlin.....	11		Northfield.....	8	
Concordia.....	2		Concord.....	9	1.5	St. Johnsbury.....	10	
Dodge City.....	1		Hanover.....	8		Virginia.		
Garden City.....	5		Keene.....	6		Cape Henry.....	2	0.0
Iola.....	2	6.0	New Jersey.			Norfolk.....	3	0.0
Topeka.....	5		Atlantic City.....	1		Woodstock.....	5	
Kentucky.			New Mexico.			Wytheville.....	2	
Eubank.....	2		Cloudcroft.....	17		Washington.		
Williamsburg.....	4		Santa Fe.....	4		Laurier.....	3	
Maine.			Tres Piedras.....	10		Spokane.....	1	
Bangor.....	7	10.0	New York.			Stampede.....	5	
Eastport.....	4	0.0	Addison.....	4		West Virginia.		
Gardiner.....	9	5.0	Albany.....	4	†	Elkins.....	10	0.0
Greenville.....	14	14.0	Alfred.....	4		Fairmont.....	4	
Lewiston.....	10	6.0	Beaver River.....	8		Parkersburg.....	2	0.0
Portland.....	10	0.0	Binghamton.....	4		Rowlesburg.....	5	
Van Buren.....	15		Buffalo.....	3	*	Wisconsin.		
Maryland.			Canton.....	3		Barron.....	5	
Frederick.....	4		Cooperstown.....	5		Brodhead.....	10	
Princess Anne.....	2		Herkimer.....	9		Fond du Lac.....	8	
Massachusetts.			Lowville.....	6		Grand Rapids.....	4	
Boston.....	1	0.0	Malone.....	3		Green Bay.....	6	4.5
Fitchburg.....	5		Ogdensburg.....	6		La Crosse.....	6	8.0
Holyoke.....	2		Oswego.....	4	2.0	Madison.....	8	
Nantucket.....	3	0.0	Poughkeepsie.....	2	0.0	Medford.....	6	
Michigan.			Rochester.....	2		Milwaukee.....	7	0.0
Alpena.....	7	4.0	Syracuse.....	5		Park Falls.....	7	
Big Rapids.....	7		Warwick.....	4		Wausau.....	4	7.5
Bloomington.....	6		Watertown.....	4		Wyoming.		
Calumet.....	21		North Carolina.			Alta.....	9	
Detroit.....	1	2.0	Asheville.....	1		Dome Lake.....	19	
Escanaba.....	5	7.5	North Dakota.			Fox Park.....	24	
Grand Haven.....	11		Bismarck.....	10	13.0	Lander.....	4	
Grand Rapids.....	4		Devils Lake.....	10		Sheridan.....	5	
Houghton.....	9	6.0	Ellendale.....	5		South Pass City.....	5	
			Williston.....	4	11.0	Yellowstone Park.....	3	

*Shore ice. †Floating ice. ‡Ice gorged. T indicates trace.



SNOW AND ICE BULLETIN.



WASHINGTON, D. C., January 14, 1919.

GENERAL SUMMARY OF THE WEATHER DURING THE PAST WEEK.

For midwinter the week just closed was unusually free from storms or other adverse weather. No precipitation of importance occurred in any portion and the temperatures were moderate for the season. Conditions favoring light local snows or rains over the districts to eastward of the Mississippi River at the beginning of the week moved to the Atlantic coast by Wednesday, during which time clear and moderately cool weather prevailed in all districts to westward.

The middle and latter parts of the week had uniformly moderate winter temperatures and clear weather, save in the far Northwest, where light local rains or snows were reported during Sunday and Monday.

At the close of the week high pressure and fair weather prevailed over nearly all western districts and in the Southeast, with rising temperatures from the Gulf States northeastward to New England, and generally lower temperatures in the West.

DEPTH OF SNOW.

Over practically all districts from the Rocky Mountains eastward there was a general decrease in the depth of the snow cover, most pronounced, however, from the eastern portion of Kansas and Nebraska eastward to the Great Lakes, and in portions of the Appalachian Mountains, although the snow-covered area remains about as shown last week.

From the Rocky Mountains westward to those of the Pacific coast there were numerous slight increases, save in the mountains of Arizona and New Mexico, but the amounts even in the high ranges are still much less than normal, save in a few localities. The deficiencies continue most marked in the mountains of California and to the northward, where the depths are still insignificant as compared with the normal for midwinter.

The greater part of the winter wheat districts to westward of the Mississippi has only a slight snow cover at the present time, and there is practically no protection over the important producing sections to the eastward. No severe weather occurred during the week, although there must have been considerable freezing and thawing due to cold nights and moderately warm days.

ICE IN RIVERS AND HARBORS.

Clear weather favored night radiation of heat, and considerable ice formed during the week over the northern districts, despite the generally moderate weather. There was little melting during the day, except in the more southern districts where ice had formed during the cold period of the preceding week, and at the close there was a very general increase in the amount of ice over that reported a week ago. However, only the more northern rivers and lakes have any considerable ice covering. The Ohio and its tributaries are still mainly free of ice, and but little is reported on the rivers of the Atlantic coast to southward of the Hudson.

The following reports on snow and ice conditions from special points have been received:

Hartford, Conn., January 14.—Navigation of the Connecticut River below Hartford is impeded by ice packs and above Hartford is closed.

Albany, N. Y., January 14.—The depth of snow in the Hudson Valley averages 5 inches, the greatest reported being 8 inches, at Corinth, N. Y.; in the Mohawk Valley it ranges from 4 to 6 inches. The ice averages 5 inches thick in the Hudson River and 4 inches thick in the Mohawk.

Binghamton, N. Y., January 14.—The depth of snow in the upper Susquehanna watershed averages 4 inches; and in the Unadilla, Chenango, and Tioga watersheds 5 inches.

Hannibal, Mo., January 13.—The channel of the Mississippi River here continues open, but nearer shore some ice measures as much as 8 inches thick.

P. O. DAY, Climatologist and Chief of Division.

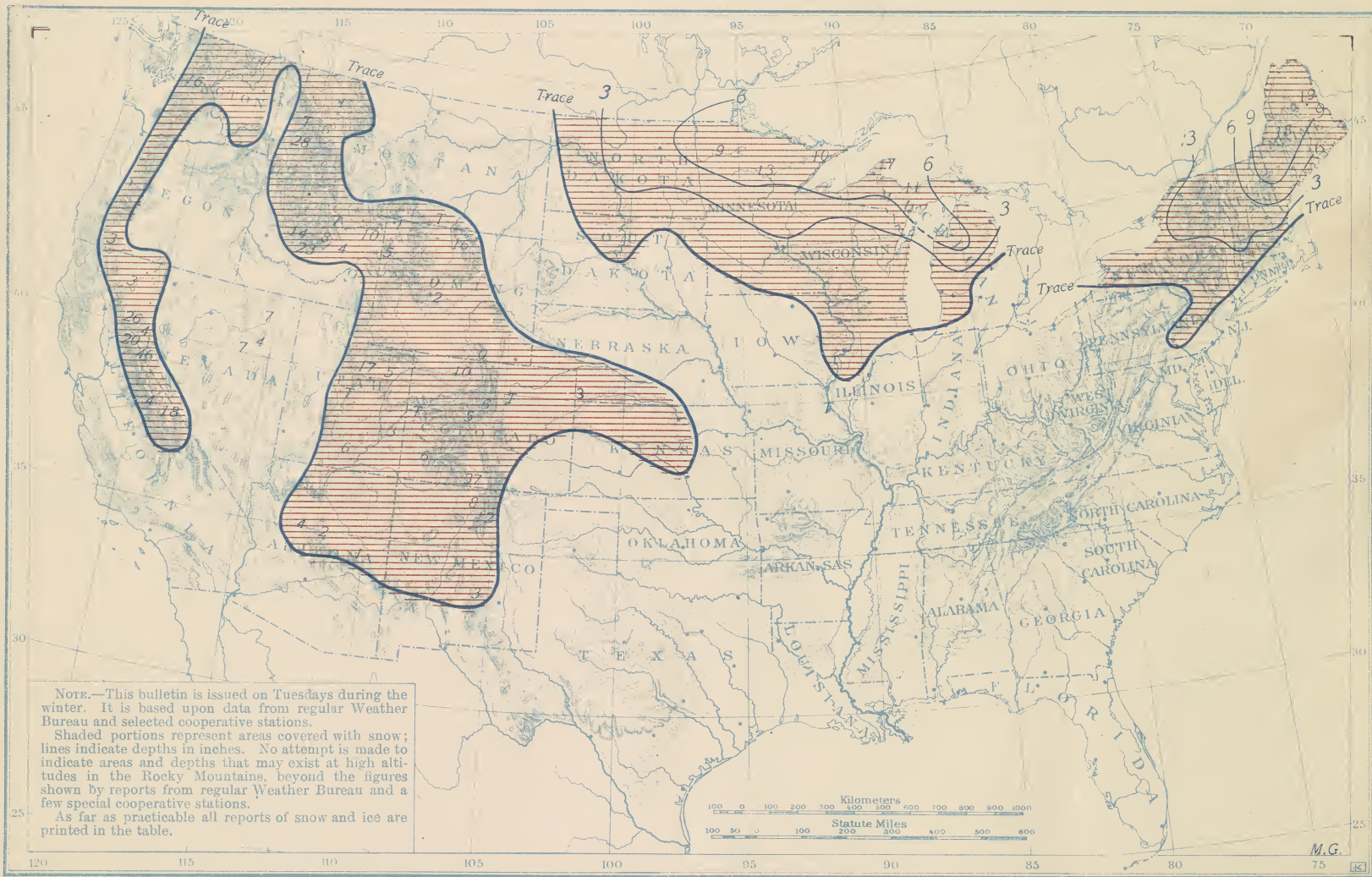
DEPTH OF SNOW AND THICKNESS OF ICE AT 8 P. M., JANUARY 13, 1919.

Stations.	Snow.	Ice in rivers, harbors, etc.	Stations.	Snow.	Ice in rivers, harbors, etc.	Stations.	Snow.	Ice in rivers, harbors, etc.
Arizona.	Inches	Inches	Michigan—Contd.	Inches	Inches	Ohio.	Inches	Inches
Flagstaff.....	6		Lansing.....	1		Cleveland.....	0	0.5
Pinedale.....	10		Ludington.....	5		Sandusky.....	0	5.5
Pinto.....	1		Manistee.....	16		Toledo.....	0	4.5
Prescott.....	2		Maple Ridge.....	10		Oklahoma.		
California.			Marquette.....	11	0.0	Oklahoma.....	T.	
Huntington Lake.....	18		Menominee.....	9		Oregon.		
Inskip.....	13		Newberry.....	7		Ben Harrison Mine.....	24	
McCloud.....	1		Port Huron.....	T.	4.5	Cornucopia.....	34	
Portola.....	1		Saginaw.....	2	10.0	Detroit.....	2	
Sierraville.....	1		Minnesota.			Gov't Camp.....	24	
Summit.....	11		Collegeville.....	4		Imperial Mine.....	29	
Colorado.			Duluth.....	4	13.0	Lakeview.....	4	
Cumbres.....	45		Fort Ripley.....	4		Siskiyou.....	4	
Denver.....	4		Grand Meadow.....	5		Sled Springs.....	9	
Dillon.....	7		Leach Lake Dam.....	12		Wallowa.....	2	
Grand Junction.....	2		Moorhead.....	9	14.5	Pennsylvania.		
Leadville.....	7		Roseau.....	3		Drifton.....	5	
Rico.....	9		St. Paul.....	3	5.5	Emporium.....	1	
Connecticut.			Thief River Falls.....	12		Erie.....	2	6.0
Hartford.....	T.	*	Wheaton.....	6		Harrisburg.....	1	
Dist. of Columbia.			Winton.....	11		Hyndman.....	2	
Washington.....	0	*	Missouri.			Millintown.....	3	
Idaho.			Gallatin.....	4		Pittsburgh.....	T.	0.0
Hailey.....	2		Hannibal.....	T.	*	Reading.....	T.	0.0
Ketchum.....	6		Kansas City.....	T.	12.0	Scranton.....	1	
Lewiston.....	0	†	St. Louis.....	T.	†	Sunbury.....	2	
McCall.....	17		Unionville.....	4		Towanda.....	4	
Oxford Ranger Sta.....	34		Montana.			Rhode Island.		
Soldier Creek.....	12		Haugan.....	7		Kingston.....	T.	
Spencer.....	9		Kalispell.....	1		Providence.....	T.	†
Wallace.....	2		Nebraska.			South Dakota.		
Illinois.			Alliance.....	2		Huron.....	T.	15.5
Cairo.....	0	†	Auburn.....	3		Pierre.....	T.	13.0
Macomb.....	2		Halsey.....	2		Yankton.....	T.	10.0
Peoria.....	T.	8.0	Omaha.....	0	8.0	Utah.		
Walnut.....	3		Nevada.			Duchesne.....	6	
Iowa.			Arthur.....	6		East Portal.....	13	
Davenport.....	1	8	Hylton.....	7		Kanab.....	T.	
Des Moines.....	T.	10.5	New Hampshire.			Manti.....	3	
Dubuque.....	4	6.5	Concord.....	7	7.0	Salt Lake City.....	T.	
Iowa City.....	3		Durham.....	6		Vermont.		
Keokuk.....	1	8.5	Hanover.....	5		Brattleboro.....	5	11.0
Marshalltown.....	2		New Jersey.			Burlington.....	5	*
Sioux City.....	0	*	Newton.....	2		Northfield.....	7	
Kansas.			Phillipsburg.....	2		St. Johnsbury.....	7	
Dresden.....	2		Trenton.....	0	2.0	Wells River.....	7	
Garden City.....	2		New Mexico.			Virginia.		
Iola.....	T.	†	Corona.....	3		Wytheville.....	T.	
Wichita.....	2		Des Moines.....	4		Washington.		
Maine.			Santa Fe.....	2		North Yakima.....	2	
Bangor.....	9	12.0	Tres Piedras.....	9		West Virginia.		
Cornish.....	12		New York.			Elkins.....	1	0.0
Gardiner.....	10	10.0	Albany.....	4	7.5	Parkersburg.....	0	†
Greenville.....	12	14.5	Binghamton.....	2		Wisconsin.		
Lewiston.....	9	8.5	Buffalo.....	2	3.0	Ashland.....	6	
Millinocket.....	17		Canton.....	4		Broadhead.....	6	
Portland.....	10	0.0	Herkimer.....	8		Delavan.....	6	
Maryland.			Ithaca.....	2		Eau Claire.....	6	
Frederick.....	1		Lake Placid.....	5		Fond du Lac.....	-9	
Massachusetts.			Malone.....	5		Grand Rapids.....	5	
Adams.....	6		Ogdensburg.....	7		Green Bay.....	4	4.5
Amherst.....	5		Oswego.....	6	2.0	La Crosse.....	3	10.0
Nantucket.....	0	*	Plattsburg.....	5		Madison.....	5	
Michigan.			Poughkeepsie.....	2	*	Medford.....	5	
Alpena.....	6	6.0	Rochester.....	2		Milwaukee.....	2	0.0
Battle Creek.....	2		Rome.....	8		Wausau.....	2	6.0
Big Rapids.....	9		Saranac Lake.....	7		Wyoming.		
Cadillac.....	14		Saratoga Springs.....	4		Alta.....	7	
Calumet.....	17		Syracuse.....	2		Buffalo.....	3	
Detroit.....	0	7.0	Watertown.....	7		Casper.....	T.	
Escanaba.....	3	8.0	North Dakota.			Cheyenne.....	T.	
Grand Haven.....	5		Bismarck.....	6	13.0	Dome Lake.....	16	
Grand Rapids.....	2		Devils Lake.....	7		Lander.....	3	
Houghton.....	6	10.0	Ellendale.....	2		Sheridan.....	3	
Iron River.....	4		Williston.....	1	13.0	South Pass City.....	T.	
Ironwood.....	11					Yellowstone Park.....	2	

* Shore ice. † Floating ice. ‡ Ice gorged. § Measurement impracticable. T indicates trace.

JAN 23 1919

SNOW AND ICE BULLETIN.



WASHINGTON, D. C., January 21, 1919.

DEPTH OF SNOW AND THICKNESS OF ICE AT 8 P. M., JANUARY 20, 1919.

GENERAL SUMMARY OF THE WEATHER DURING THE PAST WEEK.

Unusual freedom from severe cold and the general absence of extensive precipitation, particularly over the great interior and western Mountain States, were the marked features of the weather for the week just closed.

Atmospheric pressure continued high over the Plateau region, and during much of the week it was also comparatively high over the Southeastern States, while along the northern border low pressure areas moved eastward at short intervals. As a result warm southerly winds were frequent in the central valleys and eastern district, while in the western mountain regions the unusually clear weather favored radiation and the night temperatures were moderately low.

Low pressure over the west Gulf region early in the week brought local rains in Texas and over a narrow belt thence northeastward; and later a more extensive storm area moved over the Southern States, bringing some heavy rains in the lower Mississippi Valley by Friday. This storm moved to the middle Atlantic coast during the following day, after which clear weather was the rule until the end of the week, save over the Pacific Coast States where considerable rain fell during Sunday and Monday from central California northward. At the present writing temperatures are normal or above over the entire country, rains continue along the Pacific coast, and local snows have set in at points in the western mountains. In the central valleys cloudiness is increasing, with indications of precipitation, but over the eastern districts fair and warmer weather is the rule.

DEPTH OF SNOW.

The week was practically without snow over the entire area from the Rocky Mountains eastward, save at a few points in northern Maine. With no additional snow, coupled with temperatures generally higher than the average, the snow-covered area in the central and eastern districts has been materially reduced and the depths are nearly everywhere considerably less than a week ago.

Some additions to the depth of the snow cover are reported from the northern Rocky Mountains, and in the Sierra of California the amounts at the higher elevations appear to have been increased considerably, a depth of nearly four feet being reported locally. Over the greater part of the Plateau region there has been a very general reduction in the snow depth, and similar conditions exist in the far Northwestern States.

No material portion of the winter wheat area is now snow-covered, but no severe cold occurred during the week.

The general absence of inclement weather afforded unusual opportunities for outdoor operations of all kinds.

ICE IN RIVERS AND HARBORS.

Due to the general warmth in the central and eastern districts no additional ice formed on any of the rivers or lakes of these regions save in extreme northern New England. Over the Great Lakes and thence westward there was a substantial decrease in the amount of ice as compared with the previous week, this being particularly so in the Missouri River.

At the same period last year heavy ice covered the rivers and lakes of all central and northern districts, and extensive gorges were forming in the Ohio, which caused much damage when they finally broke up.

The following reports on snow and ice conditions from special points have been received:

Hartford, Conn., January 21.—The ice in the Connecticut River is gaining slowly in thickness, and harvesting is under way at scattered points. Navigation of the lower river closed on the 15th.

Albany, N. Y., January 21.—Over the Hudson Valley the snow is generally less than half an inch deep, the most reported being 4 inches at Corinth; over the Mohawk Valley it averages 1 inch deep. The ice in the Hudson River averages 4 inches thick, but the Mohawk is mostly open.

Binghamton, N. Y., January 21.—The average depth of snow on the watersheds tributary to the upper Susquehanna River is 1 inch, the greatest being 6 inches at Hamilton, N. Y. There is no snow at Pennsylvania stations near here.

Yankton, S. Dak., January 20.—The ice in the Missouri River here is rotting rapidly, and the pontoon bridge will be removed tomorrow unless freezing weather comes again.

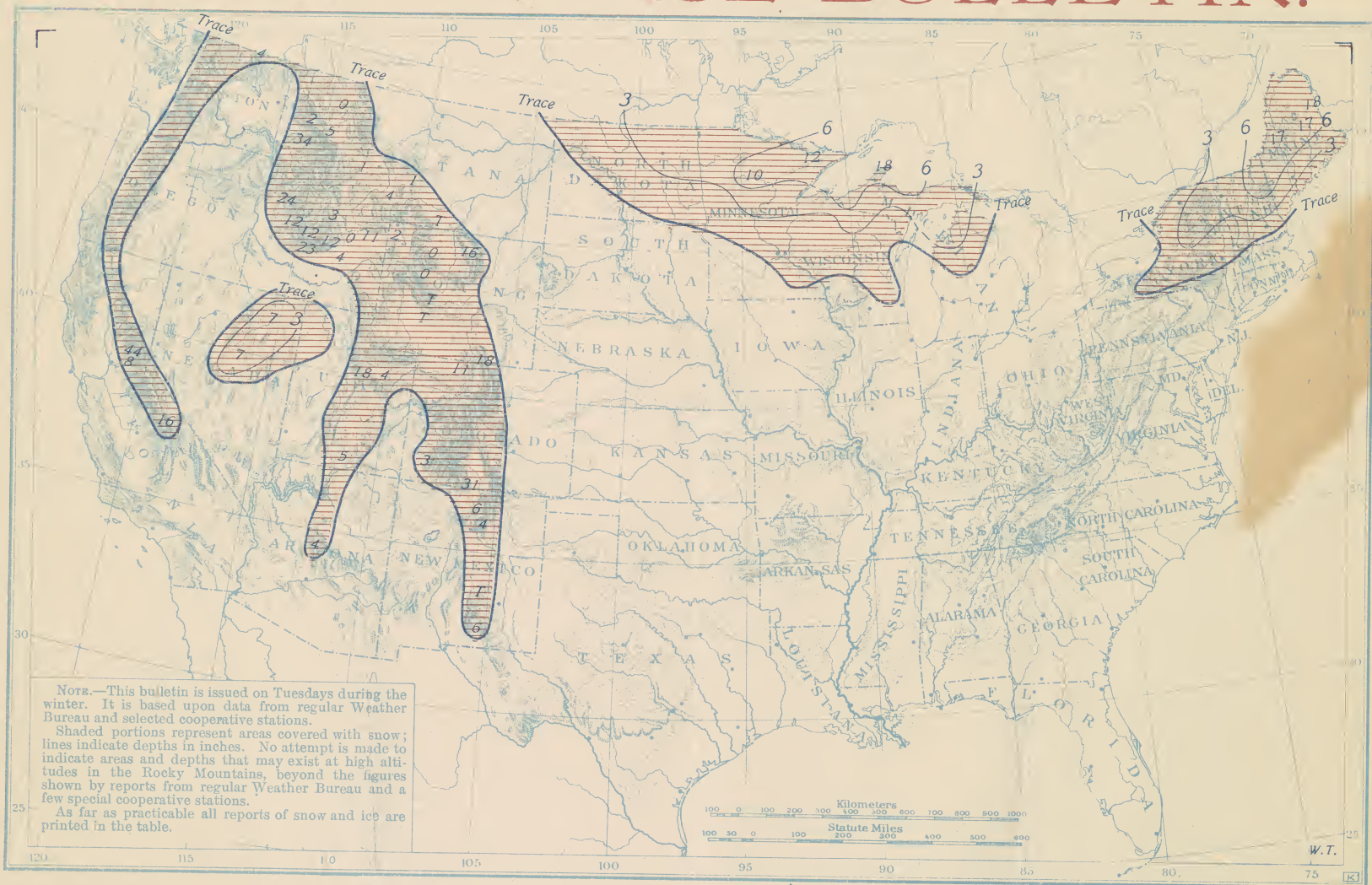
P. C. DAY, Climatologist and Chief of Division.

Stations.		Snow.	Ice in rivers, harbors, etc.	Stations.		Snow.	Ice in rivers, harbors, etc.	Stations.		Snow.	Ice in rivers, harbors, etc.
		Inches	Inches			Inches	Inches			Inches	Inches
Arizona.				Michigan—Contd.				New York—Contd.			
Flagstaff	2			Escanaba	1	8.0		Fredonia	T		
Grand Canyon	T			Grand Haven	T			Hamilton	6		
Pinedale	1			Grand Rapids	T			Lake Placid	8		
Williams	4			Harrisville	3			Lowville	2		
California.				Houghton	4	9.0		Malone	2		
Cascade	2			Iron River	2			Ogdensburg	3		
Huntington Lake	18			Ironwood	9			Oswego	1	0.0	
Inskip	26			Ludington	1			Plattsburg	4		
McCloud	3			Manistee	7			Poughkeepsie	2		
Portola	6			Maple Ridge	6			Rome	2		
Sierraville	4			Marquette	11	0.0		Saranac Lake	5		
Summit	46			Menominee	4			Syracuse	T		
Yosemite	4			Newberry	5			Watertown	2		
Colorado.				Port Huron	0	4.5		North Dakota.			
Cumbres	37			Saginaw	T	6.0		Bismarck	3	15.0	
Denver	T			Minnesota.				Devils Lake	5		
Dillon	6			Collegeville	1			Ellendale	T		
Durango	1			Duluth	4	13.0		Williston	T		
Grand Junction	T			Fort Ripley	4			Ohio.			
Leadville	5			Grand Meadow	2			Cleveland	0	†	
Rico	6			Minneapolis	T			Sandusky	0	3.0	
Steamboat Springs	10			Moorhead	3	14.5		Oregon.			
Connecticut.				Roseau	6			Lakeview	1		
Hartford	0	†		St. Paul	T	*		Siskiyou	3		
Idaho.				Thief River Falls	9			Pennsylvania.			
Hailey	4			Wintrop	1			Drifton	T		
Ketchum	8			Missouri.				Erie	0	6.0	
North Star Mine	7			Hannibal	T	*		Harrisburg	T	0.0	
Oxford Ranger Sta.	28			Kansas City	0	†		South Dakota.			
Soldier Creek	23			St. Joseph	0	†		Huron	0	14.5	
Spencer	10			Montana.				Pierre	T	13.0	
Illinois.				Haugan	6			Yankton	0	4.0	
Antioch	T			Kalispell	1			Utah.			
Chicago	T			Red Lodge	T			East Portal	17		
Peoria	0	4.5		Nebraska.				Escalante	6		
Walnut	2			Imperial	3			Manti	T		
Iowa.				McCook	1			Moab	3		
Davenport	T			North Platte	T			Vermont.			
Des Moines	0	†		Omaha	0	‡		Brattleboro	2	11.0	
Dubuque	1	6.5		Nevada.				Burlington	5	*	
Forest City	T			Arthur	4			Northfield	5		
Iowa City	1			Hylton	4			St. Johnsbury	6		
Keokuk	0	7.0		North Fork	7			Washington.			
Sioux City	0	*		New Hampshire.				Laurier	4		
Kansas.				Berlin	6			Stamper	16		
Concordia	T			Concord	5	9.0		Walla Walla	1		
Wichita	T			Durham	4			Wisconsin.			
Maine.				Hanover	4			Barron	3		
Bangor	7	13.0		Keene	2			Brodhead	4		
Cornish	9			W. Stewartstown	10			Delavan	T		
Eastport	5	0.0		New Jersey.				Eau Claire	4		
Gardiner	10	11.0		Trenton	0	*		Green Bay	2	8.5	
Greenville	13	20.0		New Mexico.				La Crosse	T	10.0	
Houlton	19			Corona	3			Madison	3		
Lewiston	8	9.0		Santa Fe	T			Medford	2		
Millinocket	14			Tres Piedras	8			Milwaukee	T	0.0	
Portland	5	0.0		Truchas	12			Park Falls	2		
Massachusetts.				New York.				Wausau	1	6.0	
Amherst	2			Albany	T	4.0		Wyoming.			
Fitchburg	1			Alfred	T			Alta	5		
Holyoke	1			Beaver River	6			Buffalo	T		
Williamstown	7			Binghamton	T			Casper	T		
Michigan.				Buffalo	T	*		Cheyenne	T		
Alpena	3	†		Canton	2			Dome Lake	16		
Battle Creek	T			Cazenovia	5			Fox Park	18		
Big Rapids	4			Cooperstown	2			Lander	2		
Cadillac	9			Corinth	4			Sheridan	T		
Calumet	17			De Ruyter	2			South Pass City	2		
Detroit	0	4.0						Yellowstone Park	1		

* Shore ice. † Floating ice. ‡ Ice gorged. § Measurement impracticable. T indicates trace.

Old Paper
Vermont, 1880

SNOW AND ICE BULLETIN.



WASHINGTON, D. C., January 28, 1919.

GENERAL SUMMARY OF THE WEATHER DURING THE PAST WEEK.

A further continuation of unusually mild weather for mid-winter over the entire country, and the absence of material precipitation of any character from the Mississippi River westward to the Plateau region, were again marked features of the weather during the week just closed.

Some heavy rains occurred over the North Pacific Coast States during the early part of the week, and it is probable that considerable snow fell in the higher mountains of these regions at the same time. Also, heavy rains set in over Texas by Wednesday morning, and during the next few days much cloudy and foggy weather prevailed over all eastern districts, and general rains prevailed from the Mississippi Valley and the Lakes region eastward, some snow falling in the extreme northern districts. In this area of cloud and rain a low pressure area of considerable extent finally developed, and by Friday morning it was central near the New England coast as a severe storm, high winds and generally heavy rains prevailing over the Atlantic coast from the Carolinas northward, with snow over the interior districts of New York and New England. During Saturday and Sunday rain overspread the greater part of the Gulf and South Atlantic States, the falls being heavy in the more eastern portions. Over the remaining districts of the country the latter part of the week was nearly everywhere clear and unusually warm. At this writing the weather is fair and temperatures are above normal in practically all portions of the country.

DEPTH OF SNOW.

Lack of material snowfall during the week prevented any extension of the snow-covered area over that reported at the end of the preceding week, and the depths then prevailing have been very generally reduced. As a result only small areas in the more northern States and the higher mountains of the West now have any material snow-cover.

For the season to date the snowfall has been below the normal over nearly all parts of the country, and this is particularly the case in the mountains of the Plateau and Pacific Coast States. In the Sierra of California, where heavy snow usually covers the ground at this season of the year, the depths are now in most places only a few inches. The winter grain regions are nearly everywhere without snow cover, but the ground is generally unfrozen, thereby affording opportunity for continued growth.

The open character of the winter has afforded unusual opportunity for continued grazing, and much hay and other stock feed has been saved. The absence of frost in the ground has permitted an unusual amount of winter plowing, which is now in operation locally as far north as the Canadian boundary.

ICE IN RIVERS AND HARBORS.

Insignificant increases in ice thickness are reported from a few points in Maine and other extreme northern regions, but elsewhere the small amounts of ice previously reported were very generally and substantially reduced. At the present time no material ice remains on any of the streams or lakes, save over the northern tier of States from the Dakotas eastward. Some ice has been harvested in New England and probably in a few other northern districts, but over the greater part of the country no opportunity has yet been afforded for gathering a supply of this household necessity.

The following reports on snow and ice conditions from special points have been received:

Brattleboro, Vt., January 27.—There is some snow on the near-by hills.
Hartford, Conn., January 28.—The snow depths in the Connecticut Valley have diminished, and there is now practically no snow south of Bellows Falls, Vt. The ice in the river is deteriorating.

DEPTH OF SNOW AND THICKNESS OF ICE AT 8 P. M., JANUARY 27, 1919.

Stations.	Snow.	Ice in rivers, harbors, etc.	Stations.	Snow.	Ice in rivers, harbors, etc.	Stations.	Snow.	Ice in rivers, harbors, etc.
Arizona.	Inches	Inches	Michigan—Contd.	Inches	Inches	New York—Contd.	Inches	Inches
Flagstaff.....	1.	.....	Manistee.....	3	.....	De Ruyter.....	T.	.....
Pinedale.....	4	.....	Maple Ridge.....	4	.....	Lowville.....	2	.....
California.			Marquette.....	9	0.0	Malone.....	3	.....
Emigrant Gap.....	8	.....	Menominee.....	T.	.....	New Berlin.....	3	.....
Huntington Lake.....	16	.....	Newberry.....	4	.....	Ogdensburg.....	3	.....
Portola.....	2	.....	Port Huron.....	0	*	Oswego.....	T.	0.0
Summit.....	44	.....	Saginaw.....	0	2.0	Plattsburg.....	2	.....
Yosemite.....	1	.....	Minnesota.			Saranac Lake.....	4	.....
Colorado.			Duluth.....	4	13.0	Trenton Falls.....	2	.....
Cumbres.....	31	.....	Fort Ripley.....	4	.....	Watertown.....	T.	.....
Dillon.....	5	.....	Grand Meadow.....	T.	.....	North Dakota.		
Durango.....	7	.....	Grandy.....	2	.....	Bismarck.....	T.	16.0
Leadville.....	4	.....	International Falls.....	4	.....	Devils Lake.....	4	.....
Rico.....	8	.....	Leech Lake Dam.....	10	.....	Ellendale.....	T.	.....
Steamboat Springs.....	11	.....	Minneapolis.....	T.	.....	Williston.....	T.	2
Connecticut.			Moorhead.....	1	14.5	Pennsylvania.		
Hartford.....	0	†	St. Paul.....	T.	.....	Drifton.....	T.	.....
Idaho.			Thief River Falls.....	5	.....	South Dakota.		
Hailey.....	4	.....	Wheaton.....	T.	.....	Pierre.....	0	12.0
Idaho City.....	12	.....	Winton.....	12	.....	Yankton.....	0	*†
Ketchum.....	12	.....	Montana.			Utah.		
McCall.....	24	.....	Bozeman.....	4	.....	Duchesne.....	4	.....
North Star Mine.....	3	.....	Elliston.....	1	.....	East Portal.....	18	.....
Oxford Ranger Sta.....	34	.....	Findon.....	1	.....	Escalante.....	5	.....
Soldier Creek.....	23	.....	Haugan.....	5	.....	Grantsville.....	T.	.....
Spencer.....	11	.....	Helena.....	T.	.....	Kelton.....	T.	.....
Wallace.....	2	.....	Nebraska.			Vermont.		
Illinois.			Omaha.....	0	*†	Bellows Falls.....	T.	.....
Peoria.....	0	*	Nevada.			Brattleboro.....	0	11.0
Iowa.			Arthur.....	3	.....	Burlington.....	1	0.0
Davenport.....	0	*†	Austin.....	5	.....	Northfield.....	5	.....
Dubuque.....	0	*	Hylton.....	7	.....	St. Johnsbury.....	4	.....
Keokuk.....	0	*	North Fork.....	7	.....	Wells River.....	5	.....
Maine.			New Hampshire.			White River J'n.....	2	.....
Bangor.....	3	14.0	Berlin.....	7	.....	Washington.		
Cornish.....	6	.....	Concord.....	1	6.0	Laurier.....	4	.....
Eastport.....	1	0.0	Durham.....	T.	.....	Wisconsin.		
Gardiner.....	5	10.0	Hanover.....	2	.....	Barron.....	1	.....
Greenville.....	17	15.0	Keene.....	T.	.....	Fond du Lac.....	T.	.....
Houlton.....	18	.....	Lancaster.....	7	.....	Green Bay.....	0	2.0
Lewiston.....	T.	10.0	W. Stewartstown.....	7	.....	La Crosse.....	0	6.0
Millinocket.....	17	.....	New Mexico.			Medford.....	1	.....
Portland.....	1	0.0	Cloudercroft.....	6	.....	Milwaukee.....	T.	0.0
Massachusetts.			Corona.....	T.	.....	Park Falls.....	2	.....
Williamstown.....	1	.....	Tres Piedras.....	6	.....	Rhineland.....	4	.....
Michigan.			Truchas.....	9	.....	Wausau.....	T.	5.0
Alpena.....	T.	0.0	New York.			Wyoming.		
Big Rapids.....	2	.....	Albany.....	T.	0.0	Cheyenne.....	T.	.....
Calumet.....	18	.....	Alfred.....	T.	.....	Dome Lake.....	16	.....
Escanaba.....	T.	9.0	Beaver River.....	10	.....	Fox Park.....	18	.....
Houghton.....	4	9.0	Buffalo.....	0	*	Lander.....	T.	.....
Ironwood.....	10	.....	Canton.....	1	.....	South Pass City.....	T.	.....
Mancelona.....	7	.....	Cazenovia.....	1	.....	Yellowstone Park.....	2	.....

* Shore ice. † Floating ice. ‡ Ice gorged. § Measurement impracticable. T indicates trace.

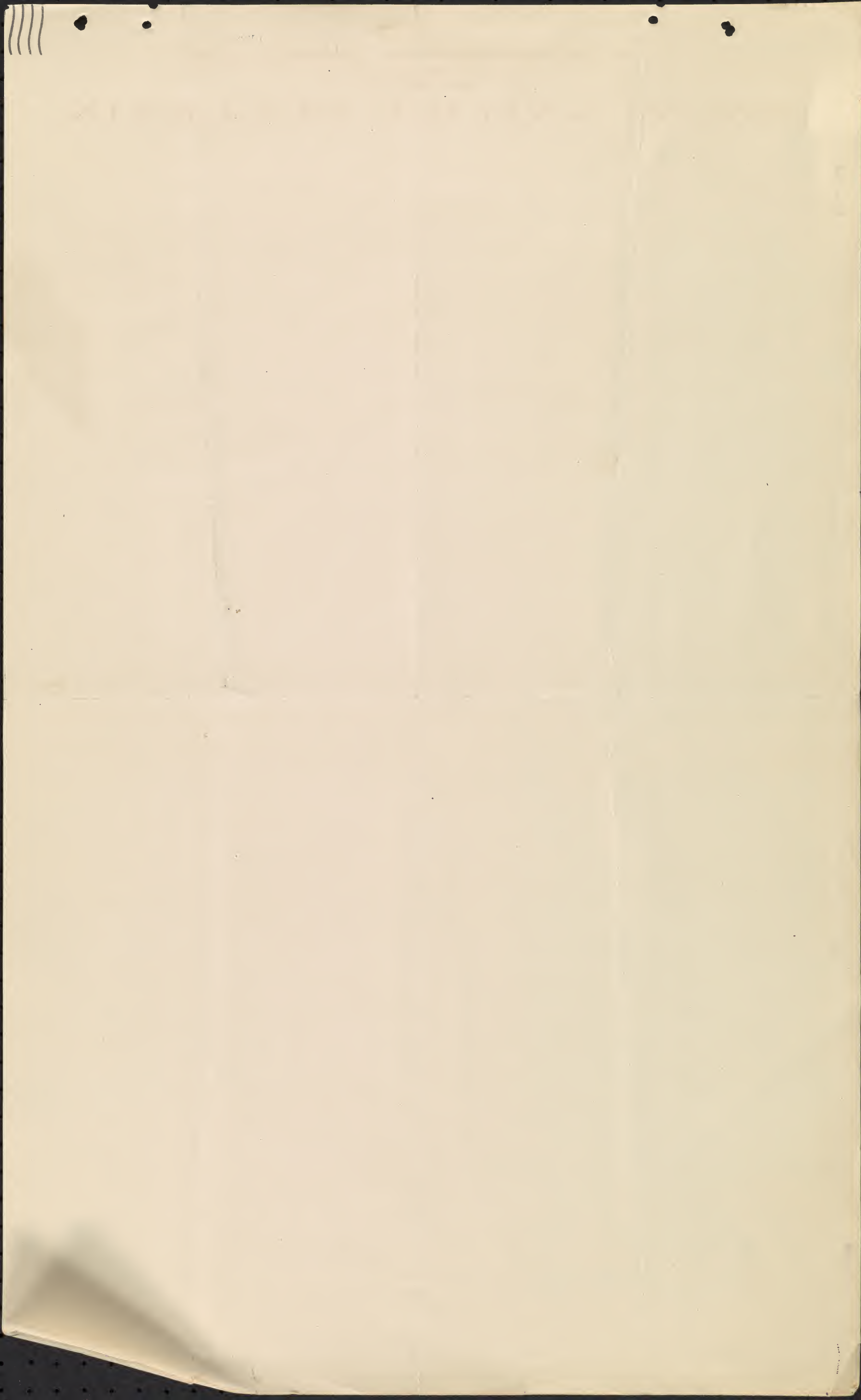
Albany, N. Y., January 28.—There is usually but a trace of snow in the Hudson and Mohawk Valleys, the greatest depth reported being 2 inches at Trenton Falls, N. Y. The rivers are mostly open.

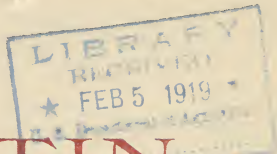
Binghamton, N. Y., January 28.—Over the upper Susquehanna watershed the snow depth averages but a trace, the greatest depth being 3 inches at New Berlin, N. Y. There is no ice in the rivers and no ice has been harvested yet, except from a few elevated ponds.

Dubuque, Iowa, January 27.—The ice in the Mississippi River here has moved downstream several hundred feet below the drawbridge, and above the drawbridge it is rapidly rotting and unsafe to measure. No ice has been harvested.

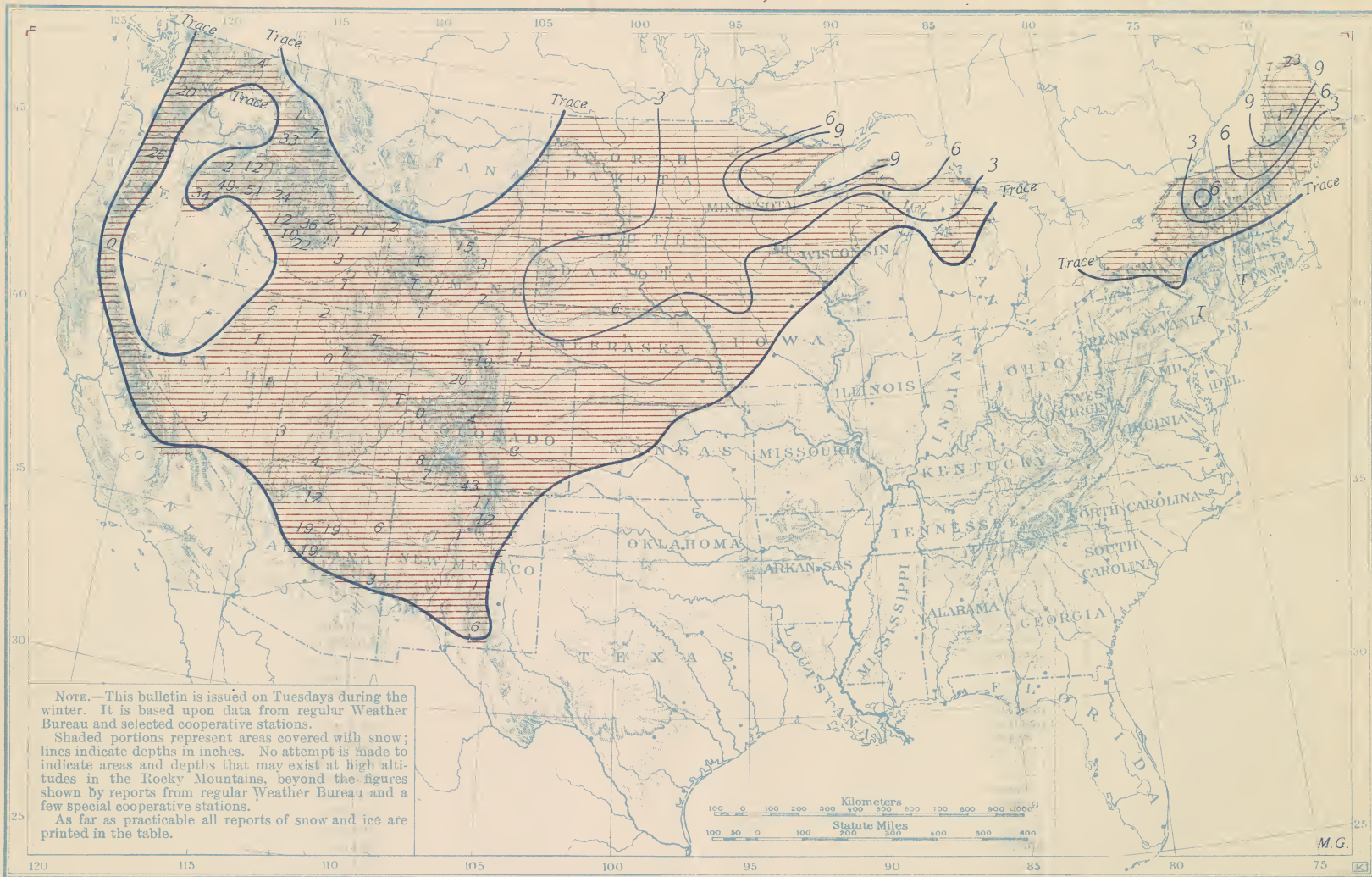
Yankton, S. Dak., January 27.—In the Missouri River here the channel ice broke on the 25th.

P. C. DAY, Climatologist and Chief of Division.





SNOW AND ICE BULLETIN.



Note.—This bulletin is issued on Tuesdays during the winter. It is based upon data from regular Weather Bureau and selected cooperative stations.
Shaded portions represent areas covered with snow; lines indicate depths in inches. No attempt is made to indicate areas and depths that may exist at high altitudes in the Rocky Mountains, beyond the figures shown by reports from regular Weather Bureau and a few special cooperative stations.
As far as practicable all reports of snow and ice are printed in the table.

WASHINGTON, D. C., February 4, 1919.

GENERAL SUMMARY OF THE WEATHER DURING THE PAST WEEK.

The early days of the week just closed continued fair and unusually warm for mid-winter over practically all portions of the country, as had been the case during much of January.

With the close of the month, however, a marked change in the pressure distribution over the far West indicated at least a temporary break in the fair weather that had dominated that portion of the country so persistently. The high pressure over the Plateau region began to break up at the close of January, and by the first of the present month a well marked depression was central over Nevada, and precipitation had set in over the far Southwest, the first of importance since the close of December. During Saturday and Sunday the precipitation area extended eastward and northward, and by Monday morning rain had fallen over the entire southern portion of the country and more or less rain or snow had fallen in the central districts as far eastward as the Mississippi Valley. At the present writing precipitation has extended into most districts to eastward of the Mississippi, the rainfall being moderately heavy in portions of the Gulf States, and snow is falling at points in the Lakes region. Precipitation has also set in over the far Northwest, and light snow is falling at points in the adjacent mountain regions. Considerably colder weather has overspread the central valleys, and it is colder in the far Southwest.

DEPTH OF SNOW.

Heavy snow fell near the end of the week in the mountain regions of Arizona, and probably in the higher mountains of the adjoining States to the north and east, and lighter falls occurred over a considerable area thence northeastward to the upper Lakes. Over other districts there was practically no snow, and the depth and extent of the snow cover remains about as reported last week.

No reports of snow depths have been received from the mountain districts of California, but it is doubtful if any material additions have been made to the small amounts previously reported, which up to date are among the least of record.

In the Great Lakes region the lack of snow is seriously hindering lumbering operations, and much concern is being expressed regarding the poor prospects for a successful season.

In the principal winter grain growing areas the ground still remains largely bare of snow, but severe freezing temperatures have been rare and no harm has probably resulted to the growing crop.

ICE IN RIVERS AND HARBORS.

Slight increases in ice thickness were reported from a few points in the Lakes region and over the far northern districts to the westward, and, due to moderate cold over the Northeastern States during the past few days, considerable new ice formed over the rivers and lakes of northern New England, and ice of good thickness is now available for harvesting in that district.

At the same period last year heavy ice covered nearly all central and northern waters and a supply of unusual proportions had been stored in all districts where ice is usually harvested.

The following reports on snow and ice conditions from special points have been received:

Brattleboro, Vt., February 3.—There is snow on the hills near here.
Hartford, Conn., February 4.—In the upper part of the Connecticut Valley there has been some increase in depth of snow, but there was no marked change otherwise. The ice conditions are practically unchanged.
Albany, N. Y., February 4.—The only snow reported in the Hudson Valley is a mere trace, at Corinth, N. Y. Over the Mohawk Valley the depth averages 1 inch. The rivers are now mostly open.
Binghamton, N. Y., February 4.—Over the upper Susquehanna watershed there is, on the average, but a trace of snow; the depth on the Tioughnioga and Chenango watersheds averages 1 inch, and on the Unadilla 2 inches. There is practically no ice in the rivers.

P. C. DAY, Climatologist and Chief of Division.

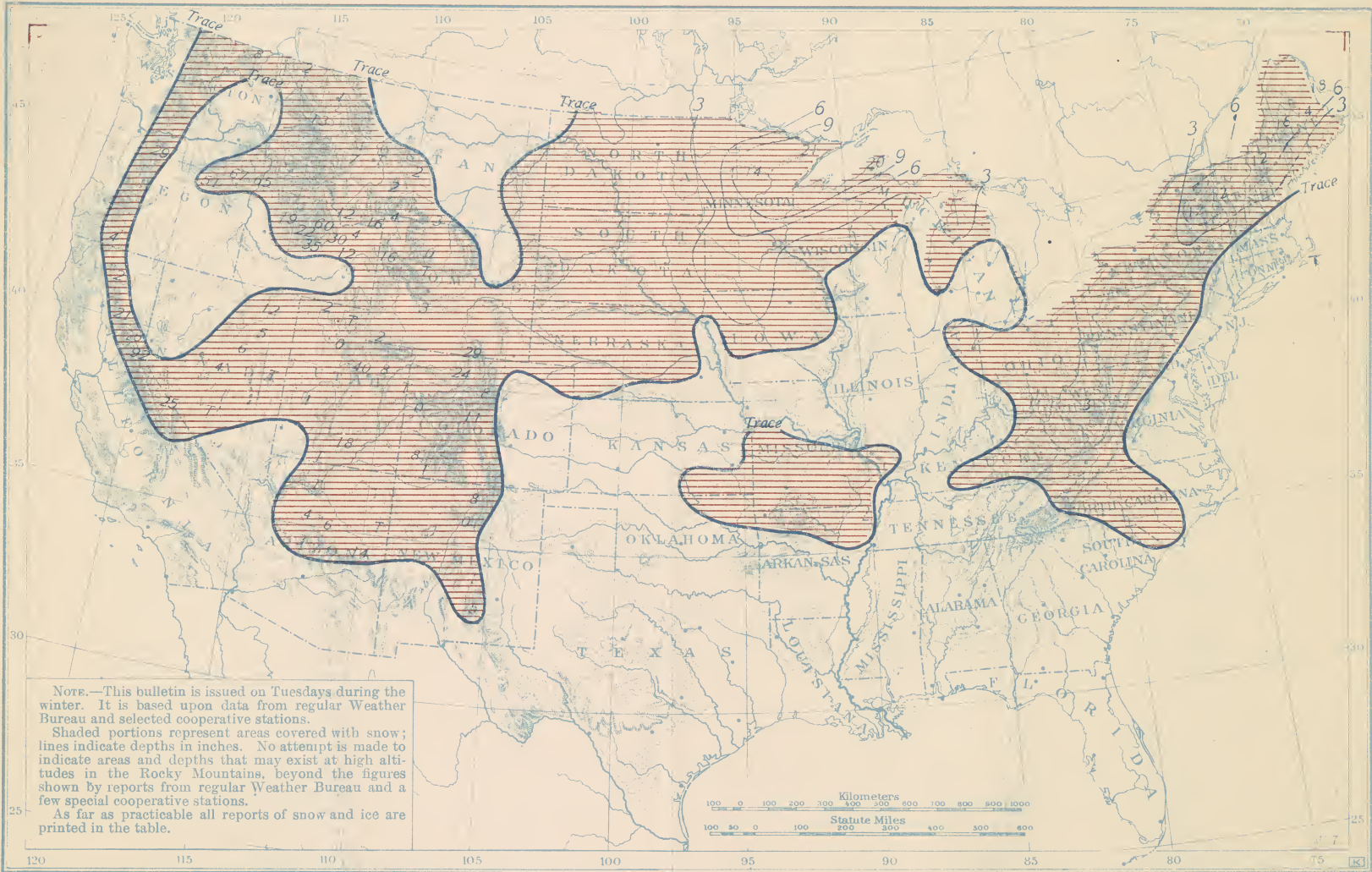
DEPTH OF SNOW AND THICKNESS OF ICE AT 8 P. M., FEBRUARY 3, 1919.

Stations.	Snow.	Ice in rivers, harbors, etc.	Stations.	Snow.	Ice in rivers, harbors, etc.	Stations.	Snow.	Ice in rivers, harbors, etc.
Arizona.	Inches	Inches	Michigan—Contd.	Inches	Inches	North Dakota.	Inches	Inches
Flagstaff	19		Port Huron	0	2.0	Bismarck	T.	17.5
Fort Apache	3		Saginaw	0	2.0	Devils Lake	3	
Grand Canyon	12		Sault Ste. Marie	4	10.0	Ellendale	T.	
Pinto	6		Minnesota.			Williston	T.	15.0
Prescott	19		Canby	5		Ohio.		
Williams	19		Duluth	11	14.0	Sandusky	0	†
Colorado.			Fort Ripley	8		Oregon.		
Cumbres	43		Grand Meadow	T.		Ben Harrison Mine	34	
Denver	T.		International Falls	3		Cornucopia	51	
Durango	7		Leech Lake Dam	10		Gov't Camp	26	
Leadville	4		Minneapolis	3		Hilgard	2	
Pueblo	3		Moorhead	1	18.0	Imperial Mine	49	
Rico	8		St. Paul	5	*†	Prairie City	1	
Steamboat Springs	20		Thief River Falls	4		Sled Springs	12	
Connecticut.			Wheaton	3		Wallowa	1	
Hartford	0	†	Winton	13		Pennsylvania.		
Idaho.			Worthington	2		Drifton	T.	
Hailey	3		Montana.			Erie	0	1.0
Idaho City	12		Haugan	7		Towanda	T.	
Ketchum	11		Helena	T.		South Dakota.		
McCall	24		Miles City	T.		Huron	3	14.0
North Star Mine	2		Nebraska.			Pierre	5	12.0
Oxford Ranger Sta.	33		Alliance	5		Rapid City	3	
Pocastello	T.		Auburn	1		Yankton	T.	*
Soldier Creek	22		Imperial	T.		Utah.		
Spencer	11		Lincoln	T.		Duchesne	5	
Vienna Mine	36		McCook	2		Kanab	4	
Wallace	1		North Platte	2		Kelton	2	
Iowa.			Oakdale	T.		Manti	1	
Boone	T.		Omaha	*		Modena	3	
Charles City	T.		Valentine	6		Salt Lake City	1	
Creston	T.		Nevada.			Watson	T.	
Davenport	0	*	Arthur	1		Vermont.		
Des Moines	0	*	McGill	1		Brattleboro	0	7.0
Dubuque	0	*†	North Fork	6		Burlington	2	
Estherville	3		Tonopah	2		Northfield	4	
Pocahontas	3		New Hampshire.			St. Johnsbury	6	
Sioux City	2	†	Berlin	8		White River J'n	2	
Kansas.			Concord	1	14.0	Washington.		
Dresden	T.		Durham	T.		Laurier	4	
Ellinwood	T.		Hanover	3		Stamper	20	
Garden City	T.		W. Stewartstown	12		Wisconsin.		
Maine.			New Mexico.			Barron	T.	
Bangor	2	16.0	Cloudcroft	6		Eau Claire	T.	
Eastport	T.	0.0	Corona	1		Fond du Lac	T.	
Gardiner	4	12.0	Santa Fe	T.		Green Bay	0	4.0
Greenville	17	25.0	Tres Piedras	11		La Crosse	T.	‡
Lewiston	T.	11.5	Truchas	12		Medford	T.	
Millinocket	15		New York.			Park Falls	1	
Portland	1	0.0	Albany	0	‡	Wausau	1	5.0
Van Buren	23		Alfred	1	*	Wyoming.		
Massachusetts.			Buffalo	T.		Buffalo	3	
Williamstown	T.		Canton	1		Casper	2	
Michigan.			Cazenovia	6		Centennial	1	
Alpena	T.	1.0	Cooperstown	T.		Cheyenne	1	
Big Rapids	T.		Corinth	T.		Dome Lake	15	
Cadillac	1		De Ruyter	2		Dubois	1	
Calumet	16		Hamilton	4		Evanston	T.	
Escanaba	T.	10.5	Ithaca	T.		Fox Park	19	
Houghton	7	7.0	Oswego	1	*	Lander	1	
Iron River	1		Plattsburg	2		Sheridan	T.	
Ironwood	9		Saranac Lake	6		South Pass City	T.	
Manistee	2		Syracuse	1		Valley	T.	
Marquette	7		Trenton Falls	3		Yellowstone Park	2	

*Shore ice. †Floating ice. ‡Ice gorged. §Measurement impracticable. T indicates trace.

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U. S. DEPARTMENT OF AGRICULTURE

SNOW AND ICE BULLETIN.



WASHINGTON, D. C., February 11, 1919.

DEPTH OF SNOW AND THICKNESS OF ICE AT 8 P. M., FEBRUARY 10, 1919.

GENERAL SUMMARY OF THE WEATHER DURING THE PAST WEEK.

The area of precipitation, mostly rain, over eastern districts, referred to in last week's bulletin, passed off the coast during the first few days of the week just closed. At the same time the storm in the far Northwest extended somewhat farther inland, but gradually dissipated without material precipitation.

With the exception of local snows or rains over widely separated localities, fair weather and moderate winter temperatures continued during the week, as for the past month or more, over the Rocky Mountain districts and the great central valleys, extending, after the first few days, into the more eastern sections.

By Saturday morning a storm of considerable magnitude had moved into the North Pacific Coast States, and during the following day or two moderately heavy rains occurred along the coast from central California northward, while in the mountain districts farther inland it is probable there were heavy snows. Light local snows occurred in the middle Plains, the Great Lakes region, and thence southeastward to the Middle Atlantic States during Saturday, continuing during Sunday in the Lakes region and extending locally into the northern portions of the Middle Gulf and South Atlantic States.

At the present writing fair weather prevails in practically all portions of the country from the Rocky Mountains eastward, but rains continue over portions of the Pacific Coast States, heavy falls being reported from central and northern California. Snow is falling at a few points in the Plateau region, and it is probably falling in the high altitudes of the Sierra and Cascade Ranges. Moderate winter temperatures prevail over eastern districts, but in portions of the Great Plains, Rocky Mountains, and the Northwest the weather continues unusually warm for midwinter.

DEPTH OF SNOW.

The snow-covered area as compared with last week shows a considerable increase in eastern districts; a large area extending from the lower Lakes to the southern Appalachian Mountains, bare at the beginning of the week, now has a slight cover. Also, considerable portions of Missouri, and northern Arkansas, likewise previously bare, now have a moderate covering.

Over the southern Rocky Mountain districts and thence northeastward to the Great Lakes, a considerable amount of snow disappeared during the week, and the covering is now quite light, with some areas now bare which were covered a week ago.

Over the northern mountain districts of the West there appears to have been a considerable increase in the depth of snow in the higher elevations, although at moderate elevations there were only slight increases.

In the Sierra large increases have been reported from a few points, and it seems probable considerable snow must have fallen during the week in other portions of those mountains, as well as in the Cascades and the higher elevations of the Coast Range.

The greater part of the winter wheat area still remains without any material snow cover, but no severe freezing has occurred so far, and it is probable that the crop still maintains the excellent condition in which it entered the winter. The absence of sufficient snow in the lumber region of the Great Lakes still hampers the usual winter operations.

ICE IN RIVERS AND HARBORS.

Moderate cold over the northern districts during much of the week caused a general increase in the amount of ice over that reported a week ago in all these regions.

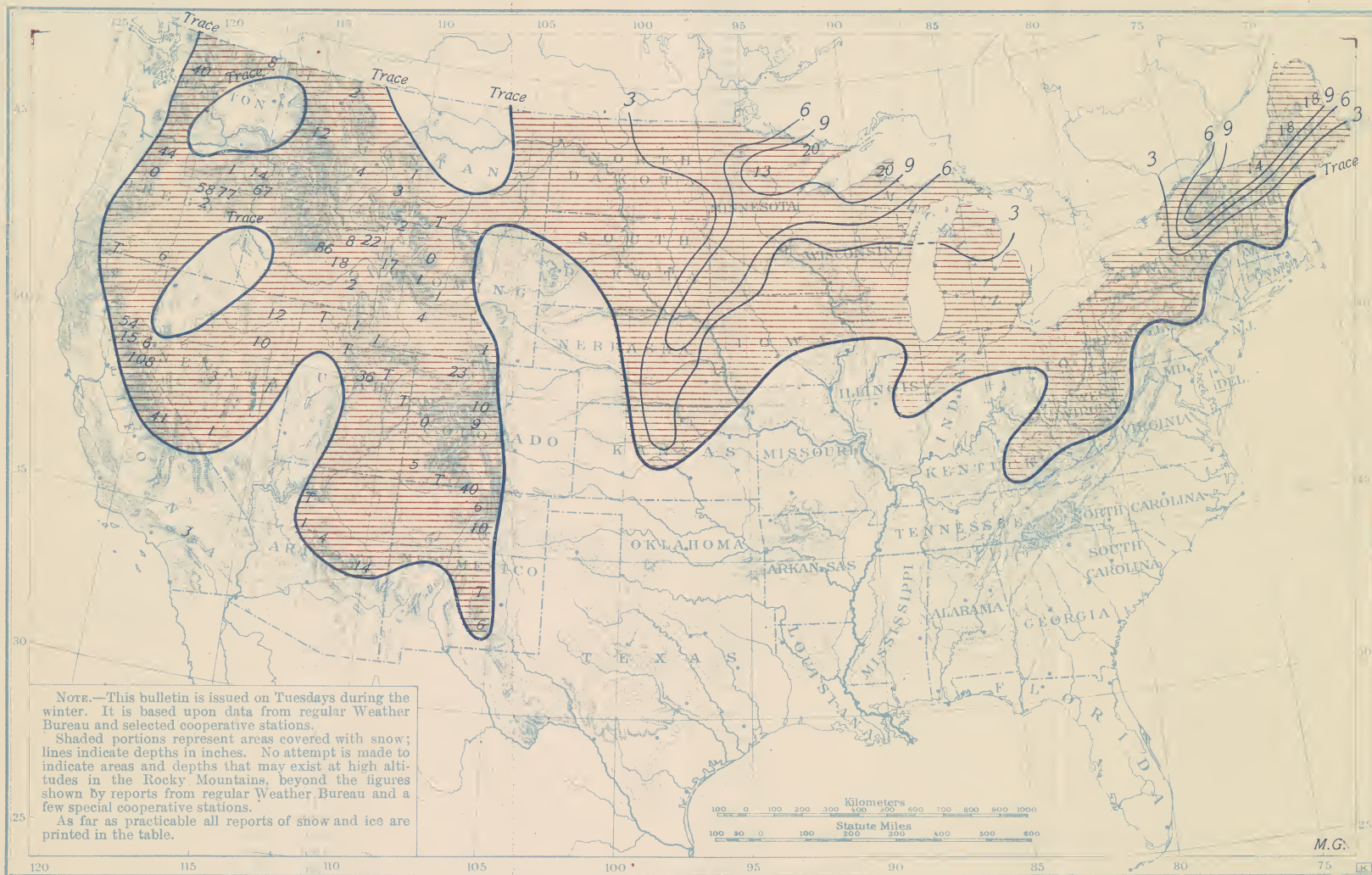
Only the northern portions of the Missouri and Mississippi Rivers have any considerable ice at the present time, and many of the harbors of the lower Lakes have but a slight covering. No appreciable ice has yet formed over the principal streams of the Atlantic coast districts from the Hudson southward, and the Ohio and its tributaries are still open. Ice of fine quality is now being harvested in New England, and some has been cut in locations favorable for its formation in New York. Ice is also being cut from the more northern tributaries of the Mississippi and Missouri Rivers.

P. C. DAY, Climatologist and Chief of Division.

Stations.			Stations.			Stations.		
Snow.			Snow.			Snow.		
Inches			Inches			Inches		
Ice in rivers, harbors, etc.			Ice in rivers, harbors, etc.			Ice in rivers, harbors, etc.		
Ariz.			Minnesota.			North Dakota.		
Flagstaff	6		Canby	5		Bismarck	0	18.0
Pinedale	14		Collegeville	8		Devils Lake	2	
Pinto	T.		Duluth	16.0		Williston	T.	18.0
Prescott	3		Fort Ripley	8		Ohio.		
Williams	4		Grandy	9		Ashland	1	
Arkansas.			International Falls	4		Canton	1	
Bentonville	2		Leech Lake Dam	14		Cleveland	1	1.0
California.			Minneapolis	2		Columbus	T.	
Emigrant Gap	5		Moorhead	1	20.0	Dayton	T.	0.0
Huntington Lake	25		St. Paul	4	10.0	Marion	1	
Inskip	21		Thief River Falls	4		Sandusky	T.	6.5
McCloud	2		Wheaton	2		Toledo	0	2.0
Sierraville	6		Winton	21		Wapakoneta	1	
Squirrel Inn	1		Worthington	5		Oklahoma.		
Summit	92		Missouri.			Broken Arrow	T.	
Colorado.			Hannibal	0	†	Oregon.		
Dillon	8		Kansas City	T.	†	Cornucopia	65	
Durango	1		Mountain Grove	2		Gov't Camp	39	
Leadville	11		Rolla	2		Imperial Mine	67	
Rico	8		St. Joseph	0	†	Siskiyou	4	
Steamboat Springs	24		Springfield	2		Pennsylvania.		
Idaho.			Montana.			Beaver Falls	1	
Hailey	12		Bozeman	2		Confluence	1	
Ketchum	30		Elliston	7		Drifton	2	
Maekay	4		Findon	2		Erie	1	4.0
North Star Mine	12		Haugan	13		Harrisburg	T.	†
Northill	2		Helena	T.		Pittsburgh	T.	0.0
Soldier Creek	35		Kalispell	1		Reading	T.	*
Spencer	16		Red Lodge	3		Saltsburg	1	
Vienna Mine	60		Nebraska.			Seranton	T.	
Illinois.			Alliance	11		Warren	2	
New Burnside	1		Halsey	4		South Dakota.		
Peoria	0	*	Imperial	2		Huron	1	15.0
Iowa.			Lincoln	T.		Pierre	T.	16.0
Charles City	T.		North Platte	T.		Rapid City	T.	
Davenport	0	†	Omaha	0	†	Yankton	T.	*
Des Moines	T.	7.0	Ravenna	2		Tennessee.		
Dubuque	T.	‡	Valentine	2		Memphis	T.	0.0
Estherville	4		Nevada.			Nashville	T.	0.0
Forest City	5		Arthur	5		Utah.		
Keokuk	0	4.0	Austin	4		Duchesne	8	
Poehontas	4		Hylton	6		Escalante	18	
Kansas.			North Fork	12		Kelton	2	
Wichita	T.		Tonopah	T.		Vermont.		
Kentucky.			New Hampshire.			Brattleboro	0	10.0
Beattyville	T.		Berlin	7		Burlington	4	*
Bowling Green	T.		Concord	T.	14.5	Northfield	5	
Eubank	1		Lancaster	12		St. Johnsbury	5	
Greensburg	T.		New Jersey.			Wells River	7	
Maine.			Trenton	0	*	Virginia.		
Bangor	2	18.0	New Mexico.			Buchanan	1	
Cornish	4		Clouderoft	5		Danville	T.	
Eastport	T.	0.0	Tres Piedras	8		Wytheville	T.	
Gardiner	4	14.0	New York.			Washington.		
Greenville	16	26.0	Albany	T.	*	Laurier	8	
Lewiston	T.	13.0	Beaver River	12		West Virginia.		
Millinocket	14		Binghamton	T.		Davis	4	
Portland	1	0.0	Buffalo	1	†	Elkins	2	0.0
Maryland.			Canton	1		Holcomb	3	
Frederick	1		De Ruyter	1		Parkersburg	T.	0.0
Massachusetts.			Ithaca	T.		Rowlesburg	2	
Nantucket	T.	0.0	Lake Placid	12		Wisconsin.		
Williamstown	T.		Malone	4		Green Bay	0	6.0
Michigan.			Ogdensburg	2		La Crosse	0	12.0
Alpena	T.	4.0	Oswego	2	2.0	Medford	2	
Cadillac	20		Plattsburg	3		Park Falls	5	
Calumet	2		Rochester	2	*	Rhinelander	4	
Escanaba	T.	13.0	Saranac Lake	6		Wausau	2	14.0
Grand Haven	1		Syracuse	1		Wyoming.		
Houghton	10	10.0	Trenton Falls	3		Alta	16	
Ironwood	10		Waterville	3		Cheyenne	T.	
Ludington	1		North Carolina.			Evanston	2	
Mancelona	6		Asheville	T.		Fox Park	29	
Newberry	4		Charlotte	T.		South Pass City	3	
Saginaw	0	6.0	Raleigh	1		Wynote	2	
Sault Ste. Marie	5	13.0	Wilmington	T.	0.0	Yellowstone Park	4	

* Shore ice. † Floating ice. ‡ Ice gorged. § Measurement impracticable. T indicates trace.

SNOW AND ICE BULLETIN.



WASHINGTON, D. C., February 18, 1919.

DEPTH OF SNOW AND THICKNESS OF ICE AT 8 P. M., FEBRUARY 17, 1919.

GENERAL SUMMARY OF THE WEATHER DURING THE PAST WEEK.

The low pressure area, with accompanying rain or snow over the far Western States, referred to in the last issue, had advanced to the eastern slopes of the middle Rocky Mountains by Wednesday morning, but precipitation was confined to the westward of the storm center only. A marked development attended the progress of this low area in its advance eastward, and by Thursday morning it was central over the lower Missouri Valley as the most severe storm of the winter so far. The rain area had rapidly extended eastward into the Ohio Valley and over the greater part of the South, and snow had fallen over much of the central and northern Great Plains. High winds prevailed over the Plains region, and drifting snow interfered seriously with traffic in Nebraska and portions of adjoining States.

During the following day the rain area extended into the Atlantic coast districts, and considerable snow fell over the Lakes region and to the westward. The storm center, however, had moved only slowly to the eastward and gave evidence of breaking up. By Saturday morning the main center had largely dissipated, but light snows continued from the middle Mississippi Valley eastward to the Appalachian Mountains and rain or snow over the North Atlantic States.

Following the precipitation area, fair weather was the rule for the remainder of the week until near the close, when rain or snow again overspread the far Northwest.

During the greater part of the week temperatures continued higher than normal over nearly all portions of the country, save near the end when colder weather overspread the South and light frosts were reported from points in Florida.

At the present writing a storm of considerable intensity appears to be developing in the far Southwest, and snow or rain has occurred over considerable areas in the Plateau and Pacific States, and snow is falling at a few points in the Great Lakes and Appalachian Mountain districts. Over the remaining portions of the country fair weather and moderate temperatures continue.

DEPTH OF SNOW.

Although considerable snow appears to have fallen during the past week over the northern Plains region and thence eastward, the moderate temperatures prevented any material accumulation, and only minor increases in depth are now shown over those reported a week ago. In the Mountain and Plateau districts of the West, very general but frequently small increases are noted for the central and northern portions, while to the southward there is now, as a rule, less snow than was reported a week ago. No material increase has occurred in the snow-covered area, as compared with last week. The slight covering over portions of Missouri and Arkansas last week disappeared, while a considerable area adjacent to southern Lake Michigan, bare a week ago, is now lightly covered.

A large portion of the winter grain area still remains free of snow, although considerable falls occurred over the northern portions of the area during the past week, and rains were general over the remaining portions. No severe freezing occurred, and the melting snow and moderate rains have doubtless assisted in maintaining the various crops in the excellent condition in which they entered the winter.

ICE IN RIVERS AND HARBORS.

The ice conditions at the close of the week remained about as previously reported. Some slight increases occurred over the more northern districts, and decreases were noted in the upper Mississippi and its tributaries and in the lower Lakes region.

No appreciable amount of ice has yet been harvested in the central and southern portions of the districts where it is usually stored.

The following reports on snow and ice conditions from special points have been received:

Albany, N. Y., February 18.—The snow in the Hudson Valley ranges in depth from 1 inch at Glens Falls to 2 at Thurman. In the Mohawk Valley only a trace is reported at most. The rivers are mostly open.

Binghamton, N. Y., February 18.—The snow in the upper Susquehanna region ranges in depth from 1 inch down. The ice is deficient in amount, and there has been only a very small harvest.

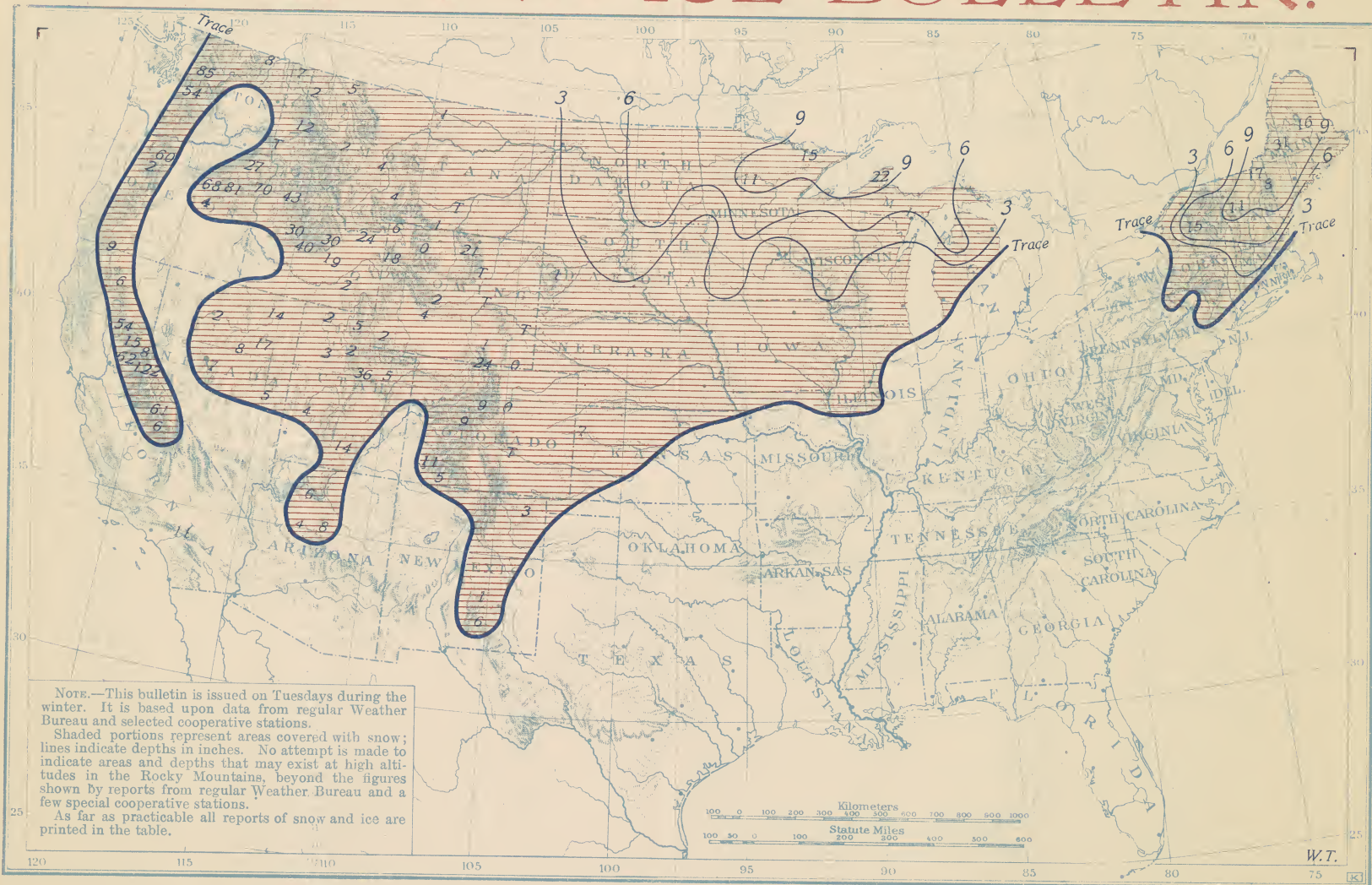
P. C. DAY, Climatologist and Chief of Division.

Stations.	Snow.	Ice in rivers, harbors, etc.	Stations.	Snow.	Ice in rivers, harbors, etc.	Stations.	Snow.	Ice in rivers, harbors, etc.
Arizona.	Inches	Inches	Michigan—Contd.	Inches	Inches	New York—Contd.	Inches	Inches
Flagstaff.....	4	.....	Port Huron.....	1	8.0	Watertown.....	T	.....
Grand Canyon....	T	.....	Saginaw.....	2	4.0	North Dakota.		
Pinedale.....	14	.....	Sault Ste. Marie..	4	14.0	Bismarck.....	2	18.0
Williams.....	1	.....	Minnesota.			Devils Lake.....	6	.....
California.			Collegeville.....	8	.....	Ellendale.....	T	.....
Cascadia.....	41	.....	Duluth.....	6	17.0	Williston.....	2	19.0
Huntington Lake..	1	.....	Fort Ripley.....	6	.....	Ohio.		
Inskip.....	54	.....	Grandy.....	8	.....	Ashland.....	T	.....
Portola.....	15	.....	International Falls	4	.....	Beverly.....	T	.....
Sierraville.....	16	.....	Leech Lake Dam..	13	.....	Cleveland.....	T	0.0
Squirrel Inn.....	3	.....	Minneapolis.....	2	.....	Gallipolis.....	T	.....
Summit.....	108	.....	Moorhead.....	1	20.0	Sandusky.....	T	†
Colorado.			Roseau.....	5	.....	Toledo.....	1	*
Cumbres.....	40	.....	St. Paul.....	2	*	Wapakoneta.....	T	.....
Dillon.....	10	.....	Wheaton.....	1	.....	Oregon.		
Durango.....	T	.....	Winton.....	20	.....	Baker.....	T	.....
Leadville.....	9	.....	Worthington.....	8	.....	Ben Harrison Mine	58	.....
Rico.....	5	.....	Missouri.			Cornucopia.....	67	.....
Steamboat Springs	23	.....	Clinton.....	T	.....	Gov't Camp.....	45	.....
Idaho.			Kansas City.....	0	†	Hilgard.....	1	.....
Boise.....	T	.....	Maryville.....	2	.....	Imperial Mine.....	77	.....
Hailey.....	18	.....	St. Joseph.....	T	†	Lakeview.....	6	.....
Ketchum.....	36	.....	Montana.			Prairie City.....	2	.....
Mackay.....	2	.....	Belton.....	2	.....	Siskiyou.....	2	.....
Pocatello.....	2	.....	Bozeman.....	3	.....	Wallowa.....	7	.....
Spencer.....	22	.....	Elliston.....	4	.....	Pennsylvania.		
Illinois.			Findon.....	1	.....	Drifton.....	2	.....
Antioch.....	T	.....	Haugan.....	12	.....	Emporium.....	T	.....
Chicago.....	T	.....	Helena.....	T	.....	Erie.....	1	3.0
Decatur.....	T	.....	Kalispell.....	1	.....	Towanda.....	T	.....
New Burnside.....	T	.....	Miles City.....	T	.....	South Dakota.		
Indiana.			Red Lodge.....	T	.....	Huron.....	T	15.5
Fort Wayne.....	1	.....	Nebraska.			Pierre.....	T	18.0
La Fayette.....	T	.....	Columbus.....	5	.....	Yankton.....	6	*
Marion.....	1	.....	Lincoln.....	T	.....	Utah.		
Iowa.			Oakdale.....	0	.....	East Portal.....	36	.....
Davenport.....	0	†	Omaha.....	0	†	Kelton.....	T	.....
Des Moines.....	T	*	Ravena.....	3	.....	Logan.....	1	.....
Dubuque.....	1	†	Valentine.....	T	.....	Salt Lake City.....	T	.....
Estherville.....	4	.....	Nevada.			Watson.....	T	.....
Forest City.....	T	.....	Arthur.....	10	.....	Vermont.		
New Hampton.....	T	.....	Austin.....	3	.....	Bellows Falls.....	1	9.0
Pocahontas.....	2	.....	McGill.....	1	.....	Burlington.....	7	*
Sioux City.....	2	*	North Fork.....	12	.....	Burlington.....	7	.....
Maine.			North Fork.....	1	.....	Northfield.....	8	.....
Bangor.....	1	19.0	North Fork.....	1	.....	St. Johnsbury.....	9	.....
Eastport.....	3	0.0	New Hampshire.			Wells River.....	8	.....
Gardiner.....	3	15.0	Berlin.....	9	.....	Washington.		
Greenville.....	18	28.5	Concord.....	2	13.0	Laurier.....	8	.....
Houlton.....	18	.....	Hanover.....	T	.....	Spokane.....	T	.....
Lewiston.....	T	14.0	Keene.....	T	.....	Stamper.....	40	.....
Millinocket.....	16	.....	Lancaster.....	14	.....	West Virginia.		
Portland.....	T	0.0	New Mexico.			Davis.....	5	.....
Massachusetts.			Cloudcroft.....	6	.....	Elkins.....	1	0.0
Concord.....	5	.....	Corona.....	3	.....	Holcomb.....	5	.....
Michigan.			Taos.....	3	.....	Parkersburg.....	T	0.0
Alpena.....	T	6.0	Tres Piedras.....	6	.....	Wisconsin.		
Ann Arbor.....	T	.....	Truchas.....	10	.....	Ashland.....	8	.....
Battle Creek.....	T	.....	New York.			Barron.....	5	.....
Bloomington.....	T	.....	Albany.....	0	*	Delavan.....	1	.....
Cadillac.....	3	.....	Alfred.....	1	.....	Eau Claire.....	T	.....
Calumet.....	20	.....	Beaver River.....	10	.....	Green Bay.....	T	4.5
Detroit.....	2	0.0	Binghamton.....	T	.....	La Crosse.....	0	?
Escanaba.....	4	13.0	Buffalo.....	T	†	Madison.....	3	.....
Grand Haven.....	T	.....	Canton.....	5	.....	Medford.....	4	.....
Grand Rapids.....	T	.....	Cazenovia.....	4	.....	Park Falls.....	7	.....
Harrisville.....	6	.....	Cooperstown.....	T	.....	Rhineland.....	6	.....
Houghton.....	7	10.0	De Ruyter.....	1	.....	Wausau.....	2	14.0
Iron Mountain.....	4	.....	Fredonia.....	1	.....	Wyoming.		
Ironwood.....	10	.....	Ithaca.....	T	.....	Alta.....	17	.....
Lansing.....	T	.....	Malone.....	6	.....	Centennial.....	1	.....
Ludington.....	1	.....	Ogdensburg.....	5	.....	Dome Lake.....	17	.....
Mackinaw.....	1	.....	Oswego.....	0	4.0	Evanston.....	1	.....
Marquette.....	8	1.0	Rochester.....	T	0.0	Lander.....	1	.....
Nemominee.....	4	.....	Rome.....	T	.....	South Pass City.....	4	.....
Newberry.....	5	.....	Syracuse.....	1	.....	Yellowstone Park.....	2	.....
			Thurman.....	2	.....		

*Shore ice. †Floating ice. ‡Ice gorged. §Measurement impracticable. T indicates trace.

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SNOW AND ICE BULLETIN.



WASHINGTON, D. C., February 25, 1919.

DEPTH OF SNOW AND THICKNESS OF ICE AT 8 P. M., FEBRUARY 24, 1919.

GENERAL SUMMARY OF THE WEATHER DURING THE PAST WEEK.

The moderate temperatures that have been such a marked feature of the weather thus far during the winter continued throughout the past week over most districts. A change to more frequent and general precipitation is noted, however, and the week, as a whole, was cloudy and wet.

The storm over the far Southwest at the beginning of the week, as referred to in the last issue, had reached the vicinity of Oklahoma by Thursday morning, at which time precipitation was fairly general over the middle and southern Plains region and in the Gulf States. Like the storm of the preceding week, this low pressure area moved to the Lakes region and gradually dissipated, although precipitation was general by Friday morning over nearly all districts to eastward of the Mississippi River, a secondary low having developed off the south Atlantic coast. At the same time a second storm, following closely the path of that of the early part of the week, had moved to the lower Mississippi Valley, and during the 24 hours preceding Saturday morning precipitation had extended into nearly all portions of the country.

During Sunday and Monday the storm center moved to the Lakes region and thence to the St. Lawrence Valley, and fair weather overspread the central valleys. In the far Northwest, however, precipitation continued, and much colder weather advanced from the Canadian Northwest into the upper Missouri Valley.

At the present writing another storm from the far Southwest has moved eastward into the lower Mississippi Valley and precipitation has extended to the south Atlantic coast, and rain or snow has again set in over the far Northwest. The cold area has advanced over the Plains region and to the Mississippi Valley, and indications point to its prompt extension into the regions between the Mississippi River and Appalachian Mountains.

DEPTH OF SNOW.

Over New England there was a considerable increase in the snow depth over that reported last week, but elsewhere east of the Mississippi River there is now generally less snow than a week ago. From central Nebraska northeastward through the Dakotas and thence westward to the Rocky Mountains there was considerable snow during the week, and the depths are now somewhat greater than last week, but over a narrow area to the eastward a considerable body of snow that covered the ground last week largely disappeared. In the western mountain districts there was a general but rather small increase in the snow depths over the lower levels, and reports from some of the high mountains indicate considerable increases, although as a general rule the accumulated amounts are less than normal, and in some districts the deficiencies are unusually large.

At the end of the week the winter wheat area was mostly without material snow cover, with the lowest temperatures of the winter so far advancing from the Northwest.

ICE IN RIVERS AND HARBORS.

From the upper Mississippi Valley eastward there is now less ice than was reported a week ago, save in a few widely scattered localities where no material changes have occurred. In the upper Missouri and its tributaries there has been a slight increase, due to the cold near the end of the week. At the same period last year, despite the unusual warmth of the greater part of the month to that time, all northern rivers and lakes still remained heavily ice-bound.

The following reports on snow and ice conditions from special points have been received:

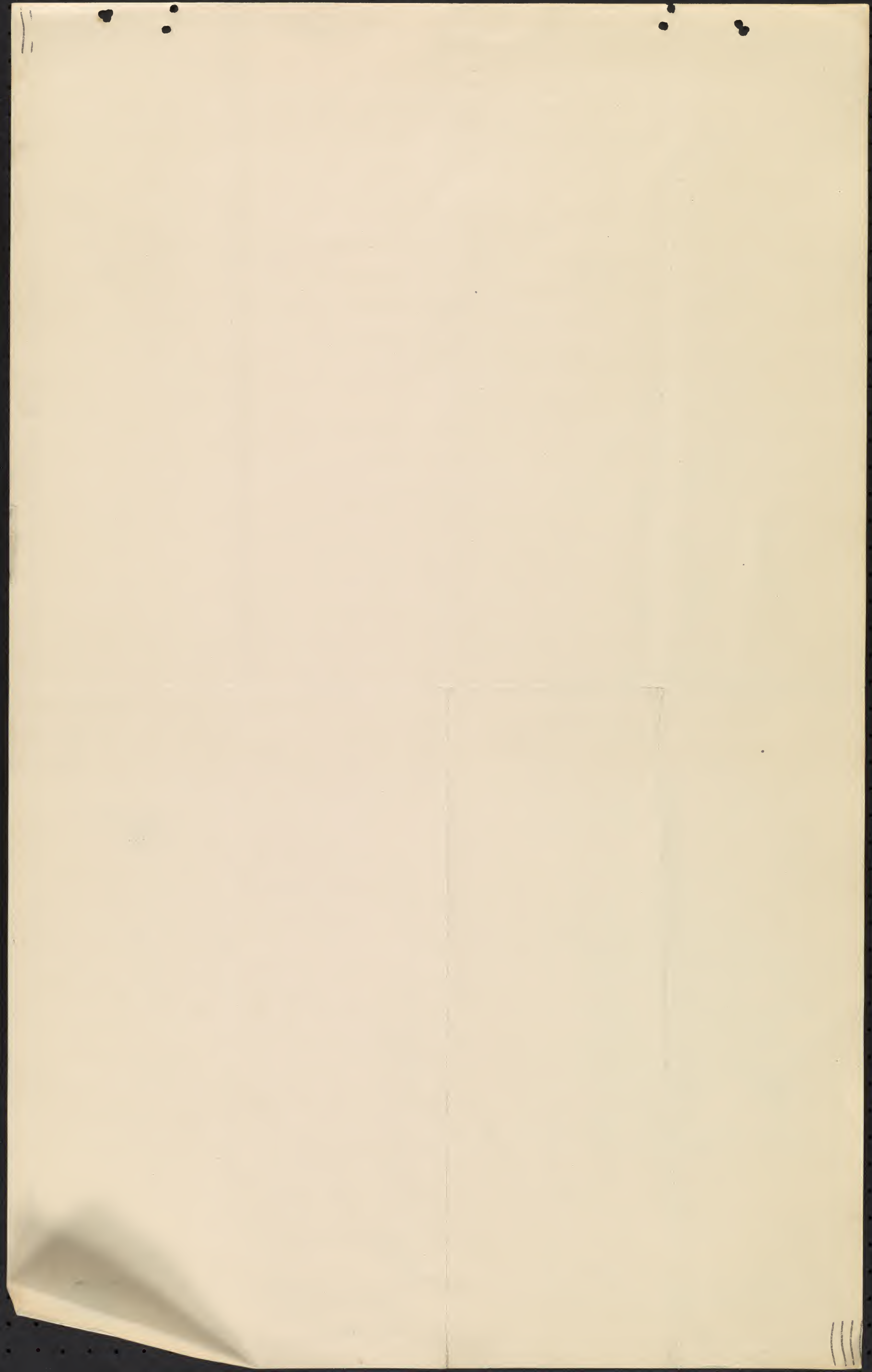
Albany, N. Y., February 25.—The snow over the Hudson Valley averages 3 inches deep, but over the Mohawk only 1 inch. The Mohawk River is mostly open, and the Hudson also to southward of the Troy dam.

Santa Fe, N. Mex., February 25.—In the higher mountains near Des Moines the snow is 6 inches deep, while in the canyons near Clouderoth depths as great as 31 inches are reported.

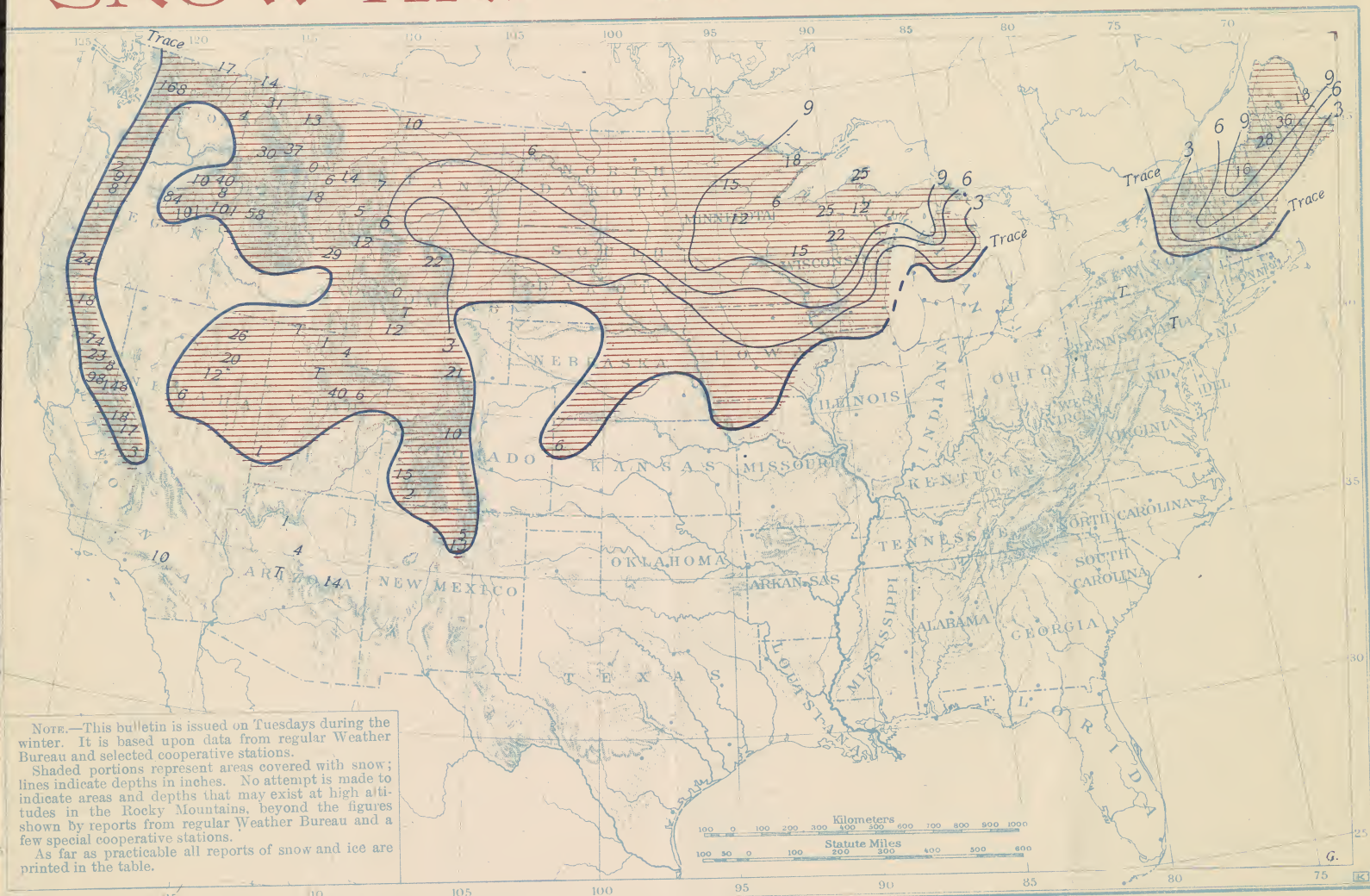
P. C. DAY, Climatologist and Chief of Division.

Stations.		Snow.		Ice in rivers, harbors, etc.		Stations.		Snow.		Ice in rivers, harbors, etc.		Stations.		Snow.		Ice in rivers, harbors, etc.	
		Inches		Inches				Inches		Inches				Inches		Inches	
Arizona.						Michigan—Contd.						New York—Contd.					
Flagstaff	8					Iron Mountain	8					Lake Placid	6				
Grand Canyon	6					Iron River	8					Lowville	1				
Williams	4					Ironwood	12					Ogdensburg	2				
California.						Mackinaw	2					Plattsburg	2				
Cascadia	6					Mancelona	12					Saranac Lake	6				
Huntington Lake	61					Maple Ridge	6					Warwick	1				
Inskip	54					Marquette	6	0.0				North Dakota.					
McCloud	6					Newberry	6					Bismarck	5	19.5			
Portola	15					Port Huron	0	3.0				Devils Lake	8				
Sierraville	8					Saginaw	0	4.0				Ellendale	7				
Squirrel Inn	11					Sault Ste. Marie	3	15.0				Williston	3	19.5			
Summit	122					Minnesota.						Oregon.					
Yosemite	8					Canby	4					Baker	T.				
Colorado.						Collegeville	6					Ben Harrison Mine	68				
Dillon	9					Duluth	5	16.0				Cornucopia	70				
Durango	5					Fort Ripley	8					Detroit	2				
Leadville	9					International Falls	4					Gov't Camp	60				
Pueblo	T.					Leech Lake Dam	11					Imperial Mine	81				
Rico	11					Minneapolis	1					Prairie City	4				
Connecticut.						Moorhead	4	21.5				Siskiyou	9				
Hartford	T.	0.0				St. Paul	1	*				Sled Springs	27				
Idaho.						Thief River Falls	7					Wallowa	4				
Hailey	19					Winthrop	1					Welches	1				
Ketchum	30					Winton	15					Pennsylvania.					
Lewiston	T.	0.0				Worthington	4					Drifton	2				
McCall	43					Missouri.						South Dakota.					
Pocahontas	2					Hannibal	T.	0.0				Huron	T.	16.0			
Porterville	7					Rolla	T.					Pierre	5	19.0			
Soldier Creek	40					St. Joseph	T.	0.0				Rapid City	1				
Spencer	24					Unionville	1					Yankton	2	*			
Wallace	12					Montana.						Utah.					
Illinois.						Belton	5					Duchesne	5				
Antioch	3					Billings	T.					East Portal	36				
Chicago	T.					Bozeman	4					Escalante	14				
Macomb	1					Findon	1					Grantsville	3				
Springfield	T.					Havre	1					Kelton	2				
Walnut	1					Helena	4					Logan	5				
Iowa.						Heron	2					Salt Lake City	2				
Creston	1					Kalispell	2					Vermont.					
Davenport	T.	*				Miles City	1					Bellows Falls	5				
Des Moines	T.	0.0				Missoula	2					Brattleboro	5	5.0			
Dubuque	1	*				Red Lodge	1					Burlington	4	*			
Estherville	2					Nebraska.						Northfield	11				
Iowa City	1					Imperial	3					St. Johnsbury	12				
Keokuk	T.	0.0				Lincoln	T.					Wells River	8				
Pocahontas	T.					McCook	2					Washington.					
Sioux City	T.	*				North Platte	2					Cascade Tunnel	85				
Kansas.						Oakdale	2					Laurier	8				
Concordia	T.					Omaha	T.	0.0				Spokane	T.				
Dodge City	1					Ravenna	1					Stampede	54				
Ellinwood	1					Valentine	T.					Tatoosh Island	T.	0.0			
Goodland	7					Nevada.						Walla Walla	T.				
Maine.						Arthur	17					Wisconsin.					
Bangor	6	19.0				Austin	7					Barron	3				
Cornish	13					Hylton	8					Delavan	2				
Eastport	2	0.0				McGill	5					Grand Rapids	T.				
Gardiner	7	12.0				North Fork	14					Green Bay	T.	†			
Greenville	31	29.0				Winnemucca	2					La Crosse	3	8.0			
Lewiston	11	13.0				New Hampshire.						Medford	4				
Millinocket	16					Berlin	8					Milwaukee	T.	0.0			
Orono	10					Concord	6	12.0				Park Falls	4				
Portland	6	0.0				Hanover	6					Rhineland	7				
Massachusetts.						Keene	5					Wausau	4	14.0			
Fitchburg	7					Lancaster	17					Wyoming.					
Holyoke	3					New Mexico.						Alta	18				
Turners Falls	8					Clouderoth	6					Buffalo	T.				
Williamstown	3					Corona	1					Casper	1				
Michigan.						Des Moines	3					Centennial	1				
Alpena	5	†				New York.						Dome Lake	21				
Big Rapids	1					Albany	T.	0.0				Evanston	2				
Cadillac	6					Beaver River	15					Fox Park	24				
Calumet	22					Buffalo	0	†				Lander	2				
Escanaba	2	14.0				Canton	1					Sheridan	T.				
Grand Haven	T.					Cazenovia	1					South Pass City	T.				
Grand Rapids	T.					Corinth	8					Wyncote	4				
Houghton	9	10.0				De Ruyter	1					Yellowstone Park	6				

*Shore ice. †Floating ice. ‡Ice gorged. §Measurement impracticable. T indicates trace.



SNOW AND ICE BULLETIN.



WASHINGTON, D. C., March 4, 1919.

GENERAL SUMMARY OF THE WEATHER DURING THE PAST WEEK.

Rapid and severe changes marked the weather over much of the country during the past week, particularly in the central valleys and Northwest, where real winter conditions, cold waves, snow, and high winds prevailed at frequent intervals.

The storm in the lower Mississippi Valley at the beginning of the week moved to the south Atlantic coast by Wednesday morning, and during the same period another storm moved along the coast from the Carolinas to New England. The two storms gave heavy rains over many eastern districts, and snow from the Lakes region and upper Ohio Valley eastward to the interior portions of New York and New England. A third storm had also developed in the far Northwest, attended by rain or snow from the upper Missouri Valley westward to the Pacific and thence south to central California.

The cold wave had moved into the central valleys, and the lowest temperatures of the winter so far were reported Wednesday morning at points in the Dakotas and Canadian Northwest. During Thursday the storm from the Northwest moved southeastward to Oklahoma and thence northeastward, and by Friday morning it was central as a severe storm over the upper portion of the middle Mississippi Valley. At this time high winds, drifting snow, and severe cold prevailed over the Great Plains from Oklahoma to the Dakotas and generally in the upper Mississippi Valley.

The precipitation area during the following 24 hours extended over most eastern districts, although the storm lost much force, and cold weather had advanced into the region between the Mississippi River and Appalachian Mountains. During the same period another storm had entered the far Northwest and the precipitation area had extended eastward to the Rocky Mountain region, and local snows had fallen over the entire northern tier of States.

During Sunday cold weather continued over the central valleys and Northwest, but precipitation had ceased, except in the far Northwest and locally in the Lakes region and the extreme Southeast. Similar conditions prevailed during Monday, except that low pressure was developing in the central mountain and Plains region, and there was a considerable rise in temperature over adjacent districts to the eastward.

At the present writing fair weather prevails, save for light snow at a few points in the middle Rocky Mountain region and locally in the upper Lakes. Cold weather continues in the Northwest, but over the middle and lower Mississippi Valley and to the eastward southerly winds and mild weather for the season prevail.

DEPTH OF SNOW.

While considerable snow appears to have fallen during the past week over the northern Plains States, much of this seems to have melted in the southern portions of the snow area, so that the covered area in that region is now less than a week ago. Along the northern border from the Great Lakes westward to the Mountains, the snow depth increased materially during the week, particularly from the Dakotas westward to the mountains of Idaho and Washington. Over the Sierra Nevada and Cascade Ranges there was a substantial increase in the snow depth at the higher elevations, and the outlook for a good supply of water during the coming summer is materially improved. Over eastern districts there was a substantial decrease in the depth, and there is now practically no snow east of the Ohio Valley and lower Lakes, save in northern New York and the interior of New England.

The winter wheat area has been largely without cover during the cold weather of the past week.

ICE IN RIVERS AND HARBORS.

Due to severe cold, considerable ice formed on the main streams and tributaries of the upper Missouri and upper Mississippi Rivers and in the harbors of Lake Superior. Elsewhere the ice conditions continued substantially as reported for several weeks past.

The following reports on snow and ice conditions from special points have been received:

Brattleboro, Vt., March 3.—There is snow on the hills near here. The Connecticut River is partly open.

DEPTH OF SNOW AND THICKNESS OF ICE AT 8 P. M., MARCH 3, 1919.

Stations.	Snow.	Ice in rivers, harbors, etc.	Stations.	Snow.	Ice in rivers, harbors, etc.	Stations.	Snow.	Ice in rivers, harbors, etc.
Arizona.	Inches	Inches	Michigan—Contd.	Inches	Inches	North Dakota—Cd.	Inches	Inches
Flagstaff.....	4	.....	Mancelona.....	10	.....	Devils Lake.....	7	.....
Grand Canyon.....	1	.....	Marquette.....	11	0.0	Ellendale.....	6	.....
Pinedale.....	14	.....	Menominee.....	7	.....	Williston.....	6	20.5
Prescott.....	T.	.....	Saginaw.....	0	4.0	Oregon.		
Williams.....	T.	.....	Sault Ste. Marie..	8	16.5	Ben Harrison Mine	84	.....
California.			Minnesota.			Cornucopia.....	101	.....
Cascadia.....	3	.....	Canby.....	10	.....	Detroit.....	8	.....
Emigrant Gap.....	98	.....	Collegeville.....	9	.....	Gov't Camp.....	91	.....
Huntington Lake.....	67	.....	Duluth.....	6	18.0	Hilgard.....	10	.....
Inskip.....	74	.....	Fort Ripley.....	12	.....	Imperial Mine.....	101	.....
McCloud.....	18	.....	Grandy.....	9	.....	Lakeview.....	21	.....
Portola.....	23	.....	International Falls	4	.....	Prairie City.....	4	.....
Sierraville.....	8	.....	Leech Lake Dam..	15	.....	Siskiyou.....	24	.....
Squirrel Inn.....	10	.....	Minneapolis.....	3	.....	Sled Springs.....	40	.....
Summit.....	148	.....	Moorhead.....	5	22.0	Wallowa.....	8	.....
Yosemite.....	18	.....	Roseau.....	8	.....	Welches.....	2	.....
Colorado.			St. Paul.....	4	5.0	Pennsylvania.		
Durango.....	2	.....	Thief River Falls.	7	.....	Drifton.....	T.	.....
Leadville.....	10	.....	Wheaton.....	6	.....	South Dakota.		
Rico.....	15	.....	Winthrop.....	7	.....	Pierre.....	4	22.0
Idaho.			Winton.....	18	.....	Rapid City.....	T.	.....
McCall.....	58	.....	Worthington.....	6	.....	Yankton.....	2	7.0
Pocatello.....	T.	.....	Missouri.			Utah.		
Porthill.....	14	.....	Maryville.....	3	.....	Duchesne.....	6	.....
Spencer.....	29	.....	St. Joseph.....	T.	.....	East Portal.....	40	.....
Wallace.....	20	.....	Unionville.....	2	.....	Kelton.....	T.	.....
Illinois.			Montana.			Logan.....	1	.....
Antioch.....	T.	.....	Billings.....	2	.....	Modena.....	1	.....
Iowa.			Bozeman.....	5	.....	Salt Lake City.....	T.	.....
Carroll.....	T.	.....	Elliston.....	6	.....	Vermont.		
Charles City.....	T.	.....	Findon.....	7	.....	Bellows Falls.....	2	.....
Creston.....	1	.....	Haugan.....	37	.....	Brattleboro.....	0	*
Davenport.....	0	.....	Havre.....	10	.....	Burlington.....	T.	*
Des Moines.....	T.	.....	Helena.....	14	.....	Northfield.....	-6	.....
Dubuque.....	3	.....	Heron.....	31	.....	St. Johnsbury.....	10	.....
Estherville.....	5	.....	Kalispell.....	13	.....	Wells River.....	9	.....
Forest City.....	8	.....	Miles City.....	5	.....	White River J'n.....	2	.....
Iowa City.....	3	.....	Red Lodge.....	1	.....	Washington.		
Iowa Falls.....	5	.....	Silver Lake.....	18	.....	Cascade Tunnel.....	168	.....
Sioux City.....	T.	5.0	Nebraska.			Laurier.....	17	.....
Kansas.			North Platte.....	T.	.....	Spokane.....	4	.....
Dresden.....	1	.....	Omaha.....	0	5.0	Wisconsin.		
Goodland.....	6	.....	Nevada.			Barron.....	13	.....
Maine.			Arthur.....	20	.....	Brodhead.....	2	.....
Bangor.....	2	20.0	Austin.....	6	.....	Delavan.....	T.	.....
Eastport.....	T.	0.0	Hylton.....	12	.....	Eau Claire.....	43	.....
Gardiner.....	6	13.0	North Fork.....	26	.....	Fond du Lac.....	8	.....
Greenville.....	28	27.0	New Hampshire.			Grand Rapids.....	11	.....
Houlton.....	18	.....	Berlin.....	9	.....	Green Bay.....	1	2.0
Lewiston.....	4	12.0	Concord.....	1	11.0	La Crosse.....	6	12.0
Millinocket.....	36	.....	Durham.....	3	.....	Madison.....	15	.....
Portland.....	2	0.0	Hanover.....	3	.....	Medford.....	T.	0.0
Massachusetts.			Keene.....	T.	.....	Milwaukee.....	12	.....
Concord.....	T.	.....	Lancaster.....	16	.....	Park Falls.....	22	.....
Williamstown.....	T.	.....	W. Stewartstown..	15	.....	Rhineland.....	T.	.....
Michigan.			New Mexico.			Wausau.....	10	20.0
Alpena.....	1	.....	Elizabethtown.....	15	.....	Wyoming.		
Bloomington.....	T.	.....	Taos.....	5	.....	Buffalo.....	T.	.....
Cadillac.....	4	.....	Truchas.....	13	.....	Centennial.....	T.	.....
Calumet.....	25	.....	New York.			Cheyenne.....	22	.....
Escanaba.....	5	16.5	Beaver River.....	8	.....	Dome Lake.....	4	.....
Harrisville.....	4	.....	Canton.....	T.	.....	Evanson.....	21	.....
Houghton.....	12	13.0	Corinth.....	6	.....	Fox Park.....	T.	.....
Iron Mountain.....	10	.....	Ogdensburg.....	2	.....	Lander.....	T.	.....
Iron River.....	12	.....	Saranac Lake.....	3	.....	Sheridan.....	T.	.....
Ironwood.....	25	.....	North Dakota.			South Pass City..	12	.....
Mackinaw.....	4	.....	Bismarck.....	6	22.0	Yellowstone Park.	12	.....

*Shore ice. †Floating ice. ‡Ice gorged. §Measurement impracticable. T indicates trace.

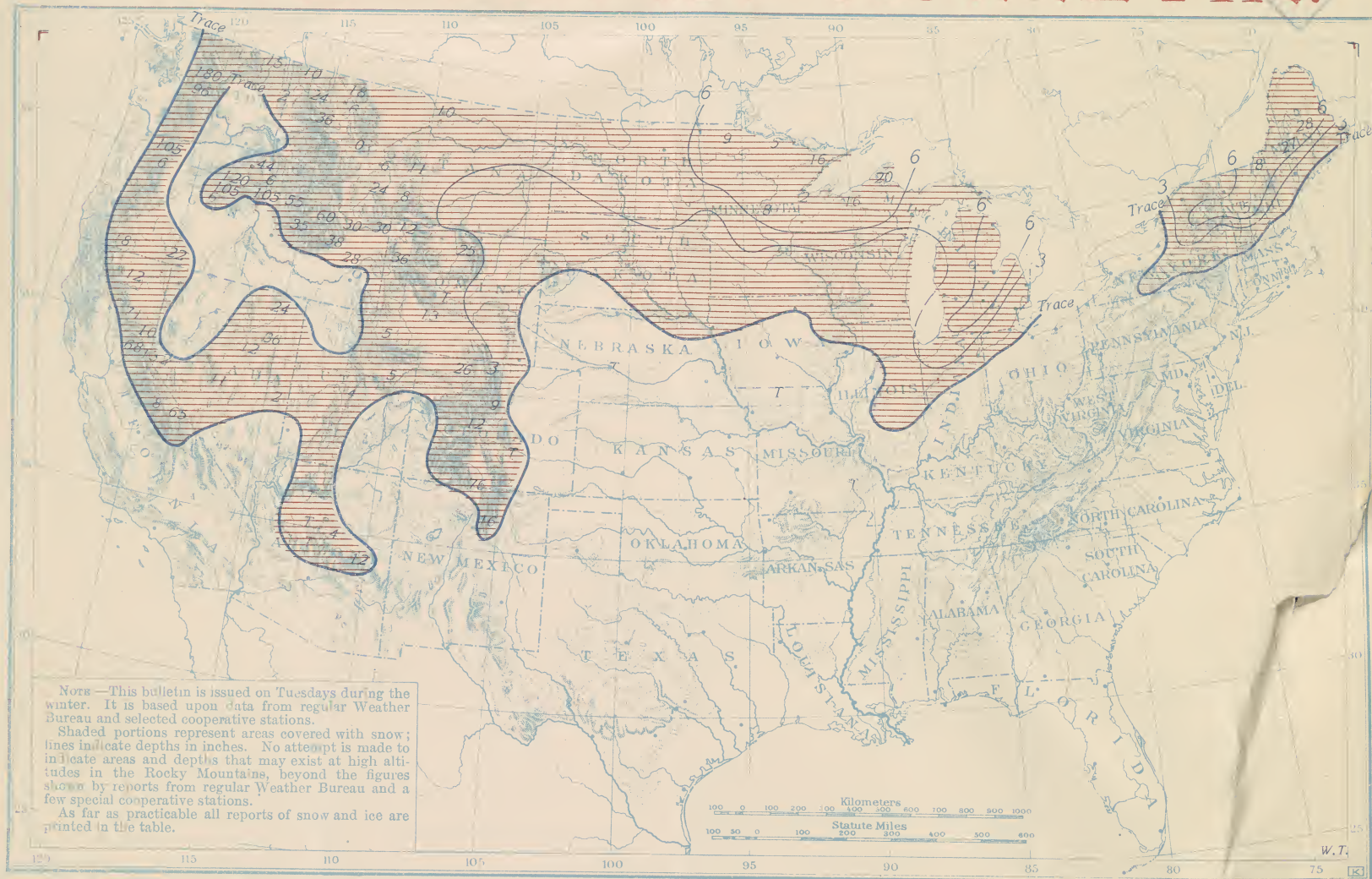
Hartford, Conn., March 4.—In the Connecticut Valley below Bellows Falls, Vt., there remains a little snow in sheltered places. The river is opening.

Albany, N. Y., March 4.—There is snow in the Sacandaga and upper Hudson Valleys, averaging 4 inches deep, but none in the Mohawk Valley or the middle or lower Hudson. The rivers are mostly open.

Yankton, S. Dak., March 3.—The Missouri River here froze over last Thursday.

P. C. DAY, Climatologist and Chief of Division.

SNOW AND ICE BULLETIN.



WASHINGTON, D. C., March 11, 1919.

DEPTH OF SNOW AND THICKNESS OF ICE AT 8 P. M., MARCH 10, 1919.

GENERAL SUMMARY OF THE WEATHER DURING THE PAST WEEK.

Sharp changes in weather conditions, usual to March, occurred over the central valleys during the first few days of the week just closed, but over the eastern and far western districts temperatures were moderate throughout the week and the daily changes slight. Precipitation was usually in the form of rain, and confined mostly to districts east of the Mississippi River.

A low pressure area extending from Texas to the Great Lakes at the beginning of the week gradually overspread the districts to the eastward during Wednesday and Thursday, and heavy rains occurred at points in the Gulf States and Ohio Valley, with more or less snow from the Lakes region to the interior of New England. At the same time local heavy rains were reported from the far Northwest and light snows occurred in the mountain districts of the West.

During the middle portion of the week a low pressure area, attended by local rains or snows, moved from the southern Plateau to Texas and thence northeastward, reaching the lower Lakes by Sunday morning as a storm of wide extent, with general and heavy rains in the Gulf and South Atlantic States and local heavy falls in the Ohio and middle Mississippi Valleys, and snow in the Lakes region and New England.

Following this storm fair weather and moderate temperature prevailed over practically all districts till the end of the week, and similar conditions prevail at this writing.

DEPTH OF SNOW.

Considerable increases in the snow depths are reported from points in the middle and northern portions of the mountain and Plateau regions of the West, and deep snow is now reported from the higher elevations of Montana, Idaho, Washington, and northern Oregon. In California the depth of snow in the mountains is somewhat less than a week ago, but this is probably due to settling, and the amount of stored moisture probably remains unchanged.

In eastern districts increases in snow depth are reported from points in northern Minnesota, in the lower peninsula of Michigan, and in northern Indiana and Illinois, where a considerable area, bare a week ago, now has a covering of from 3 to 9 inches.

In the Lake Superior region and generally over the upper Mississippi Valley and thence westerly to Montana there was a material reduction in the depth of the snow cover as compared with last week, but elsewhere the changes were slight, and the snow-covered area remains about as reported for several weeks.

The northern portions of the winter wheat area were subjected to considerable freezing and thawing during the early part of the week, but it is doubtful if this has produced any serious injury to the crop, in view of the deep-rooted and fine condition in which it entered the winter.

ICE IN RIVERS AND HARBORS.

Moderate cold in the region from the upper Lakes to the northern Rocky Mountains early in the week caused some increases in the ice thickness over the lakes and rivers of that district, but elsewhere the ice conditions remained practically as reported a week ago, save in New England where the ice appears to be breaking up and moving out of the lower portions of the rivers.

The following reports on snow and ice conditions from special points have been received; that from Detroit is a synopsis of the ice conditions over the several Great Lakes, as indicated by a large number of reports collected at that city:

Gardiner, Me., March 10.—The ice in the Kennebec River here is breaking up.

Concord, N. H., March 10.—The ice in the Merrimac River here went out on March 5.

Albany, N. Y., March 11.—There is little snow reported from any point in the Hudson or the Mohawk Valley, the greatest depth being but 2 inches. The rivers are mostly open.

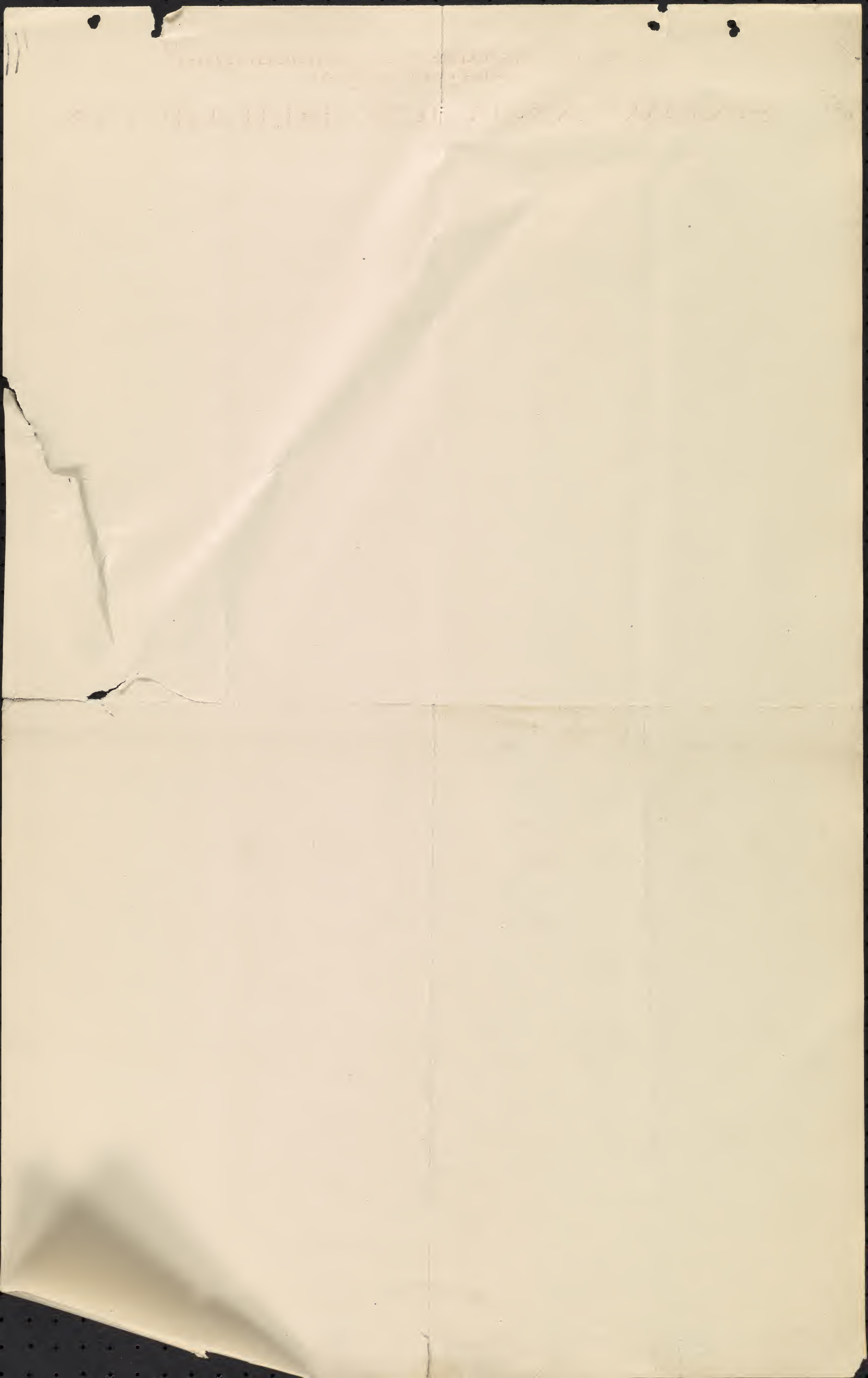
Detroit, Mich., March 11.—There has been a slight increase in the extent of the thin ice fields over western Lake Superior, while there are some broken fields off Keweenaw Point, but no fields over the eastern part. In St. Marys River the ice is from 10 to 16 inches thick. The ice in Green Bay remains solid, but Lake Michigan has only a few broken fields of slush ice. At the Straits of Mackinac the ice pack has moved in, but is not heavy. In Lake Huron only a

Stations.	Snow.	Ice in rivers, harbors, etc.	Stations.	Snow.	Ice in rivers, harbors, etc.	Stations.	Snow.	Ice in rivers, harbors, etc.
Arizona.	Inches	Inches	Michigan—Contd.	Inches	Inches	New York—Contd.	Inches	Inches
Flagstaff.....	4	.....	Iron River.....	9	.....	Rome.....	2	.....
Grand Canyon.....	T.	.....	Ironwood.....	16	.....	Saranac Lake.....	6	.....
Pinedale.....	12	.....	Lansing.....	9	.....	Syracuse.....	T.	.....
Prescott.....	T.	.....	Mackinaw.....	1	.....	Thurman.....	1	.....
Williams.....	T.	.....	Marquette.....	4	0.0	Utica.....	1	.....
California.			Menominee.....	2	.....	North Dakota.		
Cascade.....	1	.....	Saginaw.....	7	4.0	Bismarck.....	5	23.0
Emigrant Gap.....	68	.....	Sault Ste. Marie.....	4	16.0	Devils Lake.....	5	.....
Huntington Lake.....	65	.....	Minnesota.			Ellendale.....	5	.....
Inskip.....	71	.....	Collegeville.....	7	.....	Williston.....	4	21.5
McCloud.....	12	.....	Duluth.....	2	18.0	Ohio.		
Sierraville.....	10	.....	Fort Ripley.....	8	.....	Napoleon.....	2	.....
Summit.....	132	.....	Grand Meadow.....	1	.....	Toledo.....	T.	0.0
Yosemite.....	8	.....	Grandy.....	6	.....	Oregon.		
Colorado.			International Falls.....	5	.....	Ben Harrison Mine.....	120	.....
Cumbres.....	76	.....	Minneapolis.....	1	.....	Cornucopia.....	105	.....
Dillon.....	9	.....	Moorhead.....	2	22.0	Detroit.....	6	.....
Durango.....	T.	.....	Roseau.....	9	.....	Gov't Camp.....	105	.....
Leadville.....	12	.....	St. Paul.....	1	7.0	Imperial Mine.....	105	.....
Pueblo.....	T.	.....	Thief River Falls.....	8	.....	Lakeview.....	22	.....
Steamboat Springs.....	26	.....	Wheaton.....	1	.....	Prairie City.....	6	.....
Idaho.			Winthrop.....	2	.....	Siskiyou.....	18	.....
Hailey.....	28	.....	Winton.....	16	.....	Sled Springs.....	44	.....
Ketchum.....	33	.....	Worthington.....	2	.....	Wallawa.....	6	.....
McCall.....	55	.....	Missouri.			South Dakota.		
North Star Mine.....	30	.....	Arcadia.....	T.	.....	Huron.....	1	17.5
Porthill.....	10	.....	St. Joseph.....	0	↑	Pierre.....	1	22.0
Spencer.....	30	.....	Unionville.....	T.	.....	Rapid City.....	T.	.....
Vienna Mine.....	60	.....	Montana.			Yankton.....	2	7.0
Illinois.			Belton.....	18	.....	Utah.		
Antioch.....	T.	.....	Billings.....	T.	.....	Duchesne.....	5	.....
Casey.....	T.	.....	Bozeman.....	8	.....	East Portal.....	43	.....
Chicago.....	3	.....	Findon.....	11	.....	Logan.....	T.	.....
Decatur.....	T.	.....	Haugan.....	38	.....	Manti.....	4	.....
Hoopeson.....	1	.....	Havre.....	10	.....	Watson.....	T.	.....
Springfield.....	T.	.....	Helena.....	6	.....	Vermont.		
Indiana.			Heron.....	24	.....	Bellows Falls.....	1	.....
Fort Wayne.....	1	.....	Kalispell.....	6	.....	Brattleboro.....	0	*
Royal Center.....	3	.....	Red Lodge.....	T.	.....	Burlington.....	2	*
Iowa.			Silver Lake.....	24	.....	Northfield.....	5	.....
Davenport.....	0	↑	Nebraska.			St. Johnsbury.....	7	.....
Dubuque.....	T.	↑	North Platte.....	T.	.....	White River J'n.....	1	.....
Estherville.....	1	.....	Omaha.....	0	*	Washington.		
Forest City.....	T.	.....	Nevada.			Cascade Tunnel.....	180	.....
Iowa City.....	T.	.....	Arthur.....	36	.....	Laurier.....	15	.....
Pocahontas.....	T.	.....	Austin.....	11	.....	Spokane.....	2	.....
Sioux City.....	T.	5.0	Hylton.....	12	.....	Stampede.....	96	.....
Maine.			McGill.....	2	.....	Wisconsin.		
Bangor.....	T.	20.0	North Fork.....	24	.....	Barron.....	6	.....
Cornish.....	4	.....	Tonopah.....	T.	.....	Brodhead.....	2	.....
Eastport.....	T.	0.0	New Hampshire.			Grand Rapids.....	5	.....
Gardiner.....	T.	12.0	Berlin.....	1	.....	Green Bay.....	0	2.0
Greenville.....	27	27.0	Hanover.....	1	.....	La Crosse.....	T.	12.5
Lewiston.....	T.	9.0	Lancaster.....	9	.....	Madison.....	1	.....
Millinocket.....	28	.....	W. Stewartstown.....	8	.....	Medford.....	5	.....
Massachusetts.			New Mexico.			Milwaukee.....	T.	0.0
Williamstown.....	T.	.....	Truchas.....	16	.....	Park Falls.....	7	.....
Michigan.			New York.			Rhinelander.....	6	.....
Alpena.....	6	0.0	Alfred.....	T.	.....	Wausau.....	2	19.0
Battle Creek.....	8	.....	Beaver River.....	5	.....	Wyoming.		
Bloomington.....	8	.....	Buffalo.....	0	*	Alta.....	36	.....
Calumet.....	20	.....	Canton.....	1	.....	Casper.....	T.	.....
Detroit.....	2	0.0	Cooperstown.....	T.	.....	Cheyenne.....	1	.....
Escanaba.....	2	17.0	Herkimer.....	2	.....	Dome Lake.....	25	.....
Grand Haven.....	3	.....	Lowville.....	3	.....	Evanston.....	5	.....
Grand Rapids.....	2	.....	Malone.....	3	.....	Lander.....	T.	.....
Harrisville.....	6	.....	Northville.....	2	.....	Sheridan.....	T.	.....
Houghton.....	8	12.0	Ogdensburg.....	8	.....	South Pass City.....	13	.....
Iron Mountain.....	5	.....	Plattsburg.....	4	.....	Yellowstone Park.....	12	.....

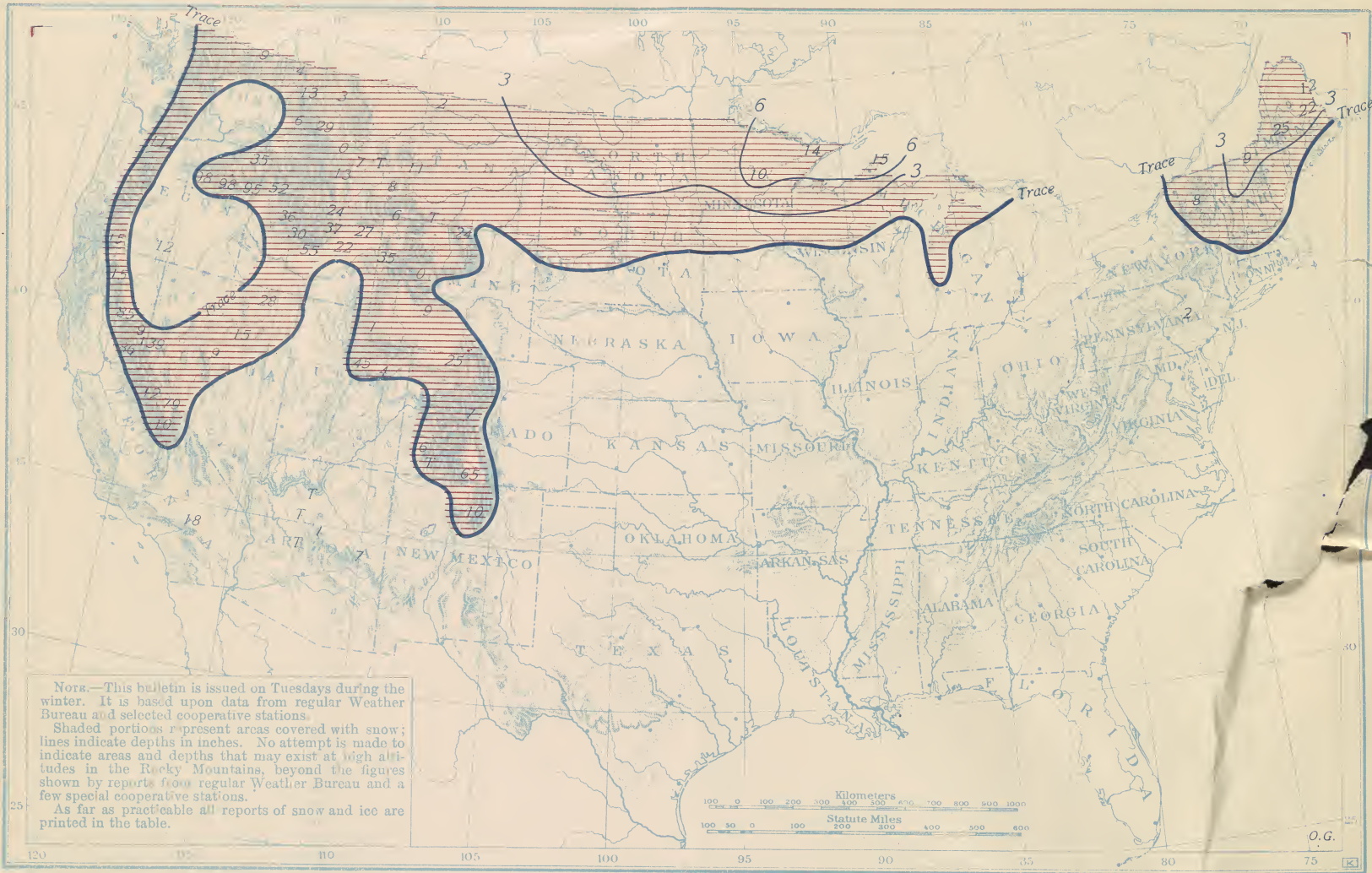
* Shore ice. † Floating ice. ‡ Ice gorged. § Measurement impracticable. T indicates trace.

few fields of broken slush ice are reported, and Lake St. Clair and the Detroit River are open. In Lake Erie there are no fields reported, while in Ontario some harbors have ice but there seem to be no fields in the lake. There is now considerably less ice in all lakes than at this date last season.

P. C. DAY, Climatologist and Chief of Division.



SNOW AND ICE BULLETIN.



WASHINGTON, D. C., March 18, 1919.

GENERAL SUMMARY OF THE WEATHER DURING THE PAST WEEK.

The chief features of the weather during the week just closed were the marked high pressure over northeastern districts about the middle of the week, and the heavy rains in southern Florida and the middle Mississippi and lower Ohio Valleys near the end.

The first half of the week was mainly clear with moderate temperatures, save along the northern border from the Dakotas eastward, and generally over New England and the North Atlantic States, where rather severe cold for the season prevailed during Thursday and Friday.

Near the middle of the week a low pressure area entered the Pacific Coast States, and by Friday morning it had advanced into the central Rocky Mountain region as a storm of wide extent, but without material precipitation save to the westward. During Friday it advanced into the middle Missouri Valley, and by Saturday morning was central over North Dakota, the precipitation area having extended over the central valleys and northern Plains and as far eastward as the Middle Atlantic States. At the same time local heavy rains occurred in southern Florida, more than 10 inches in 48 hours having been reported from the vicinity of Miami, with consequent severe damage to early truck crops.

During Sunday and Monday heavy rains continued over most central and eastern districts, the falls being particularly heavy in the middle Mississippi and lower Ohio Valleys, where local falls ranging from 2 to 10 inches occurred.

At the present writing rain has ceased over practically all eastern districts, and clear weather with moderate temperatures prevails in nearly all portions of the country, save along the Pacific coast from central California northward, where rain has again set in.

DEPTH OF SNOW.

The rains of the latter part of the week greatly reduced the snow cover in the Lakes region and upper Mississippi Valley, and the general warmth of the week materially reduced the depth over the mountain districts of the West, save in California and locally in Nevada and Utah. It is probable, however, that there was little run-off, the lessened depths representing a settling process without considerable loss of water content. There was some reduction in the snow depths over New England, although rather cold weather prevented any great loss.

In California there were important increases in most of the mountain districts and small additions are reported locally from Nevada and Utah.

As a whole the snow-covered area is materially reduced, and the depths now remaining are nearly everywhere less than a week ago.

The rains of the past week over the principal winter wheat districts have furnished abundant moisture for present needs, and with moderate temperatures during the week conditions have been highly favorable for the progress of that crop. Good rains fell also in the principal spring wheat regions.

ICE IN RIVERS AND HARBORS.

At a few points on the rivers and lakes of the far North slight increases in ice thickness were reported, but as a rule the ice broke up quite rapidly under the influence of the warm and heavy rains of the latter part of the week, and all navigable rivers are now largely open.

The following reports on snow and ice conditions from special points have been received; that from Detroit is a synopsis of the ice conditions over the several Great Lakes, as indicated by a large number of reports collected at that city:

DEPTH OF SNOW AND THICKNESS OF ICE AT 8 P. M., MARCH 17, 1919.

Stations.	Snow.	Ice in rivers, harbors, etc.	Stations.	Snow.	Ice in rivers, harbors, etc.	Stations.	Snow.	Ice in rivers, harbors, etc.
Arizona.	Inches	Inches	Michigan—Contd.	Inches	Inches	New York—Contd.	Inches	Inches
Flagstaff	1	.....	Escanaba	T.	17.0	Lake Placid	8	.....
Grand Canyon	T.	.....	Grand Haven	T.	.....	Saratoga Springs	T.	.....
Pinedale	7	.....	Houghton	6	11.0	Tribes Hill	1	.....
Prescott	T.	.....	Iron Mountain	1	.....	North Dakota.		
Williams	T.	.....	Iron River	2	.....	Bismarck	7	28.0
California.			Ironwood	4	.....	Devils Lake	5	.....
Cascade	10	.....	Ludington	T.	.....	Ellendale	2	.....
Emigrant Gap	86	.....	Marquette	1	1.5	Williston	4	22.0
Huntington Lake	79	.....	Sault Ste. Marie	T.	16.0	Oregon.		
Inskip	85	.....	Minnesota.			Ben Harrison Mine	98	.....
McCloud	15	.....	Canby	T.	.....	Cornucopia	95	.....
Sierraville	9	.....	Collegeville	2	.....	Gov't Camp	112	.....
Squirrel Inn	18	.....	Duluth	T.	18.0	Imperial Mine	98	.....
Summit	189	.....	Fort Ripley	5	.....	Lakeview	12	.....
Yosemite	12	.....	Leech Lake Dam	10	.....	Siskiyou	15	.....
Colorado.			Minneapolis	T.	.....	Sled Springs	85	.....
Cumbres	65	.....	Moorhead	1	21.5	Wallowa	3	.....
Durango	T.	.....	St. Paul	T.	*	Pennsylvania.		
Leadville	7	.....	Thief River Falls	3	.....	Drifton	2	.....
Rico	6	.....	Wheaton	T.	.....	South Dakota.		
Steamboat Springs	25	.....	Winton	14	.....	Huron	0	†
Idaho.			Montana.			Pierre	T.	‡
Hailey	22	.....	Billings	T.	.....	Rapid City	T.	.....
Idaho City	36	.....	Bozeman	8	.....	Yankton	0	*†
Ketchum	37	.....	Elliston	7	.....	Utah.		
McCall	52	.....	Findon	11	.....	Duchesne	4	.....
North Star Mine	24	.....	Haugan	29	.....	East Portal	45	.....
Porthill	4	.....	Havre	2	.....	Vermont.		
Shake Creek R. Sta	30	.....	Helena	T.	.....	Bellows Falls	2	.....
Soldier Creek	65	.....	Heron	13	.....	Brattleboro	1	*†
Spencer	27	.....	Kalispell	3	.....	Burlington	0	*
Wallace	6	.....	Miles City	1	.....	Northfield	3	.....
Maine.			Red Lodge	T.	.....	St. Johnsbury	3	.....
Bangor	T.	21.0	Silver Lake	23	.....	White River J'n	2	.....
Gardiner	T.	*	Nevada.			Washington.		
Greenville	25	26.0	Austin	9	.....	Laurier	9	.....
Houlton	12	.....	Hylton	15	.....	Wisconsin.		
Lewiston	T.	8.0	North Fork	28	.....	La Crosse	0	†
Millinocket	22	.....	New Hampshire.			Medford	1	.....
Portland	1	0.0	Berlin	1	.....	Park Falls	3	.....
Massachusetts.			Concord	1	0.0	Wausau	T.	8.0
Concord	1	.....	Hanover	T.	.....	Wyoming.		
Fitchburg	2	.....	Lancaster	9	.....	Alta	85	.....
Turners Falls	2	.....	New Mexico.			Casper	T.	.....
Williamstown	2	.....	Truchas	10	.....	Dome Lake	24	.....
Michigan.			New York.			Evanston	1	.....
Alpena	T.	†	Canton	T.	.....	South Pass City	9	.....
Calumet	15	.....	Corinth	1	.....	Yellowstone Park	6	.....

*Shore ice. †Floating ice. ‡Ice gorged. §Measurement impracticable. T. indicates trace.

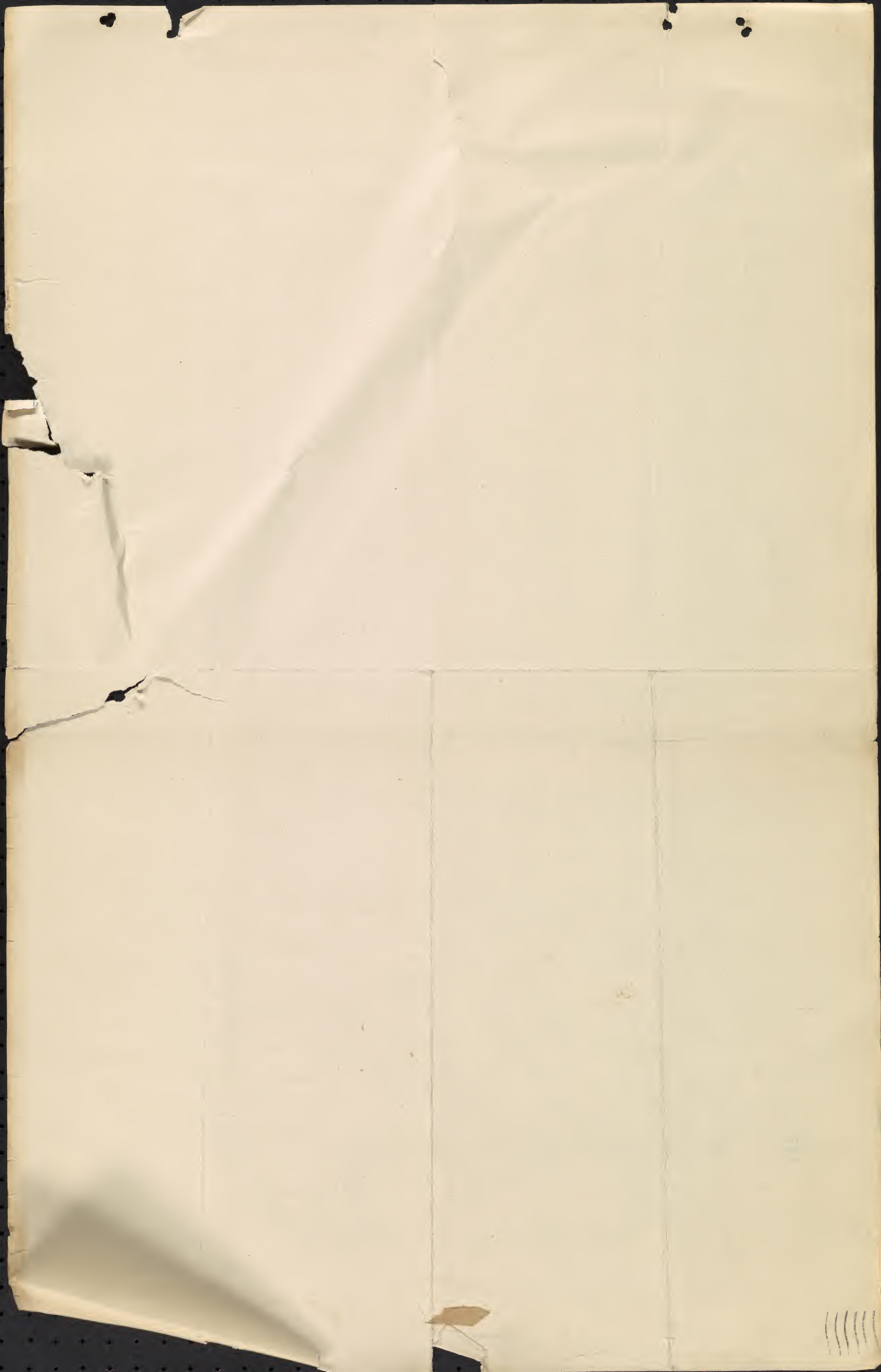
Gardiner, Me., March 17.—There is now some open water in the Kennebec River.

Brattleboro, Vt., March 17.—The ice in the Connecticut River here has broken up. Hartford, Conn., March 18.—Navigation of the lower Connecticut River, from Hartford to Long Island Sound, was resumed on the 17th.

Albany, N. Y., March 18.—At most, the snow depth in the Hudson and Mohawk Valleys is but 1 inch. There is ice left only in the upper Hudson River. Detroit, Mich., March 18.—The Great Lakes are now mostly free of ice. Whitefish Bay is full of broken slush ice, and the St. Marys River has ice ranging from 11 to 16 inches in thickness. In Green Bay the ice is softening and open water spaces are showing. The Straits of Mackinac are open, but Lake Huron has small scattered fields of slush ice. There is much less ice in all lakes than at the corresponding date last year.

Wausau, Wis., March 17.—The ice harvest in the Wisconsin River has ended. Yankton, S. Dak., March 17.—The ice in the Missouri River here broke and started to move yesterday noon.

P. C. DAY, Climatologist and Chief of Division.



SNOW AND ICE BULLETIN.



WASHINGTON, D. C., March 25, 1919.

GENERAL SUMMARY OF THE WEATHER DURING THE PAST WEEK.

The chief factors influencing the weather during the week just closed have been the high atmospheric pressure over the central and northern districts, and the very general absence of precipitation save in the far Southwest.

The opening days of the week were mainly clear, save along the immediate Pacific coast and over a narrow area from the Carolinas to New England.

By Thursday morning a high pressure area had advanced from the British Northwest into the Missouri Valley, attended by sharp falls in temperature and light local snows. This high pressure advanced slowly eastward, gaining considerable intensity, and during the remainder of the week controlled the weather conditions over practically all districts from the Rocky Mountains eastward. There was an unusual absence of cold weather, however, considering the strength of the high and the general prevalence of northerly winds.

In the far Southwest a moderate low pressure area was maintained during the middle portion of the week, and precipitation occurred locally, mostly in the form of snow, which press reports indicate was unusually heavy in the mountain portions of New Mexico, southern Colorado, and northern Arizona. By the close of the week this precipitation area in the Southwest had advanced into the middle and southern Plains region, but elsewhere fair weather and moderate spring temperatures were the rule.

At the present writing low pressure prevails over the Great Plains, and rain or snow is falling at numerous points from Texas to Minnesota and the Lake Superior region. At Cheyenne, Wyo., more than 6 inches of snow fell during the past 24 hours, and it still continues. In other portions of the country the weather remains fair and moderately warm.

DEPTH OF SNOW.

Some additions to the snow cover occurred during the week just closed in the mountain districts of New Mexico and portions of adjoining States, but elsewhere there was little or no snow and the depths on ground at the close were everywhere less than a week ago. East of the Rocky Mountains appreciable depths are now recorded at only a few points in New England and the Lake Superior region.

In the western mountain regions there was nearly everywhere a material reduction in the snow depth, but this appears not to have resulted in any material run-off so far. The outlook for a good supply of snow in the high mountains of the West, so unfavorable at the end of January and in some localities even late in February, greatly improved during the latter part of the winter, and the indications now point to a supply near the normal, and the water prospects are now mainly good, at least for the early part of the coming growing season.

The spring so far has apparently been favorable for winter grains, and their condition should be above that usual at this period of the year, considering the excellent start they had attained at the beginning of winter. No lack of soil moisture is indicated at the present time in either the winter or spring wheat region, and the absence at the present time of any material snow cover over the latter region indicates the early beginning of spring seeding.

ICE IN RIVERS AND HARBORS.

The ice still holds at a few points in the upper Missouri, on the Red River of the North, and locally in central New England. Also

DEPTH OF SNOW AND THICKNESS OF ICE AT 5 P. M., MARCH 24, 1919.

Stations.	Snow.	Ice in rivers, harbors, etc.	Stations.	Snow.	Ice in rivers, harbors, etc.	Stations.	Snow.	Ice in rivers, harbors, etc.
Inches	Inches	Inches	Inches	Inches	Inches	Inches	Inches	Inches
Arizona.			Michigan.			North Dakota.		
Flagstaff.....	1		Calumet.....	8		Bismarck.....	3	22.5
Grand Canyon.....	3		Houghton.....	T.	†	Devils Lake.....	3	
Pinedale.....	3		Marquette.....	T.	0.0	Ellendale.....	T.	
Pinto.....	1		Sault Ste. Marie..	T.	12.0	Williston.....	T.	‡
Prescott.....	T.		Minnesota.			Oregon.		
California.			Duluth.....	T.	16.0	Ben Harrison Mine	78	
Huntington Lake.....	69		Fort Ripley.....	T.		Cornucopia.....	72	
Inskip.....	72		Grandy.....	T.		Gov't Camp.....	95	
McCloud.....	T.		Leech Lake Dam.....	5		Imperial Mine.....	88	
Portola.....	7		Minneapolis.....	T.		Lakeview.....	4	
Sierraville.....	4		Moorhead.....	T.	19.0	Siskiyou.....	5	
Squirrel Inn.....	14		Roseau.....	4		Sled Springs.....	24	
Summit.....	132		Thief River Falls..	T.		South Dakota.		
Colorado.			Winton.....	12		Pierre.....	0	‡
Cumbres.....	55		Montana.			Utah.		
Dillon.....	4		Belton.....	10		East Portal.....	42	
Durango.....	2		Bozeman.....	T.		Vermont.		
Leadville.....	5		Findon.....	2		Burlington.....	0	*
Pueblo.....	T.		Haugan.....	23		Northfield.....	T.	
Idaho.			Havre.....	T.		St. Johnsbury.....	T.	
Hailey.....	8		Heron.....	6		Washington.		
Idaho City.....	27		Kalispell.....	T.		Laurier.....	T.	
Ketchum.....	20		Silver Lake.....	18		Stampede.....	55	
North Star Mine.....	15		Nevada.			Wisconsin.		
Shake Creek R. Sta.	20		Austin.....	5		Park Falls.....	T.	
Soldier Creek.....	46		Hylton.....	12		Wyoming.		
Spencer.....	16		North Fork.....	26		Casper.....	T.	
Maine.			New Hampshire.			Cheyenne.....	T.	
Cornish.....	T.		Berlin.....	T.		Dome Lake.....	22	
Greenville.....	16	25.0	New Mexico.			Fox Park.....	19	
Houlton.....	10		Clouderoft.....	4		South Pass City..	4	
Lewiston.....	0	†	Corona.....	4		Yellowstone Park..	1	
			Truchas.....	6				

*Shore ice. †Floating ice. ‡Ice gorged. §Measurement impracticable. T. indicates trace.

in the upper Lakes a few harbors remain closed, but otherwise all rivers and lakes are open and navigation is being resumed.

Over the southern portions of the districts where ice is usually stored practically none has been secured during the past season, and even farther north, where failures to secure sufficient supplies are rare, the amounts stored are far less than the local requirements.

The following reports on snow and ice conditions from special points have been received; that from Detroit is a synopsis of the ice conditions over the several Great Lakes, as indicated by a large number of reports collected at that city:

Hartford, Conn., March 25.—In the extreme upper portion of the Connecticut Valley the snow averages 2 inches deep, but it is rapidly disappearing, even on the mountains and in sheltered localities. The Connecticut River is clear of ice everywhere to southward of White River Junction, Vt.

Albany, N. Y., March 25.—No snow or ice is reported from any point in the Hudson or the Mohawk watershed.

Detroit, Mich., March 25.—The Great Lakes are practically free of ice. The only obstructed passage is St. Marys River, where the ice ranges from 10 to 12 inches. The ice in Green Bay is breaking up. There is much less ice remaining than at the same period last season.

P. C. DAY, Climatologist and Chief of Division.

NOTE.—This will be the last bulletin of this series for the season of 1918-19.

